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# Satellite Radar Altimetry Over Ice

*Volume 1—Processing and  
Corrections of Seasat Data  
Over Greenland*

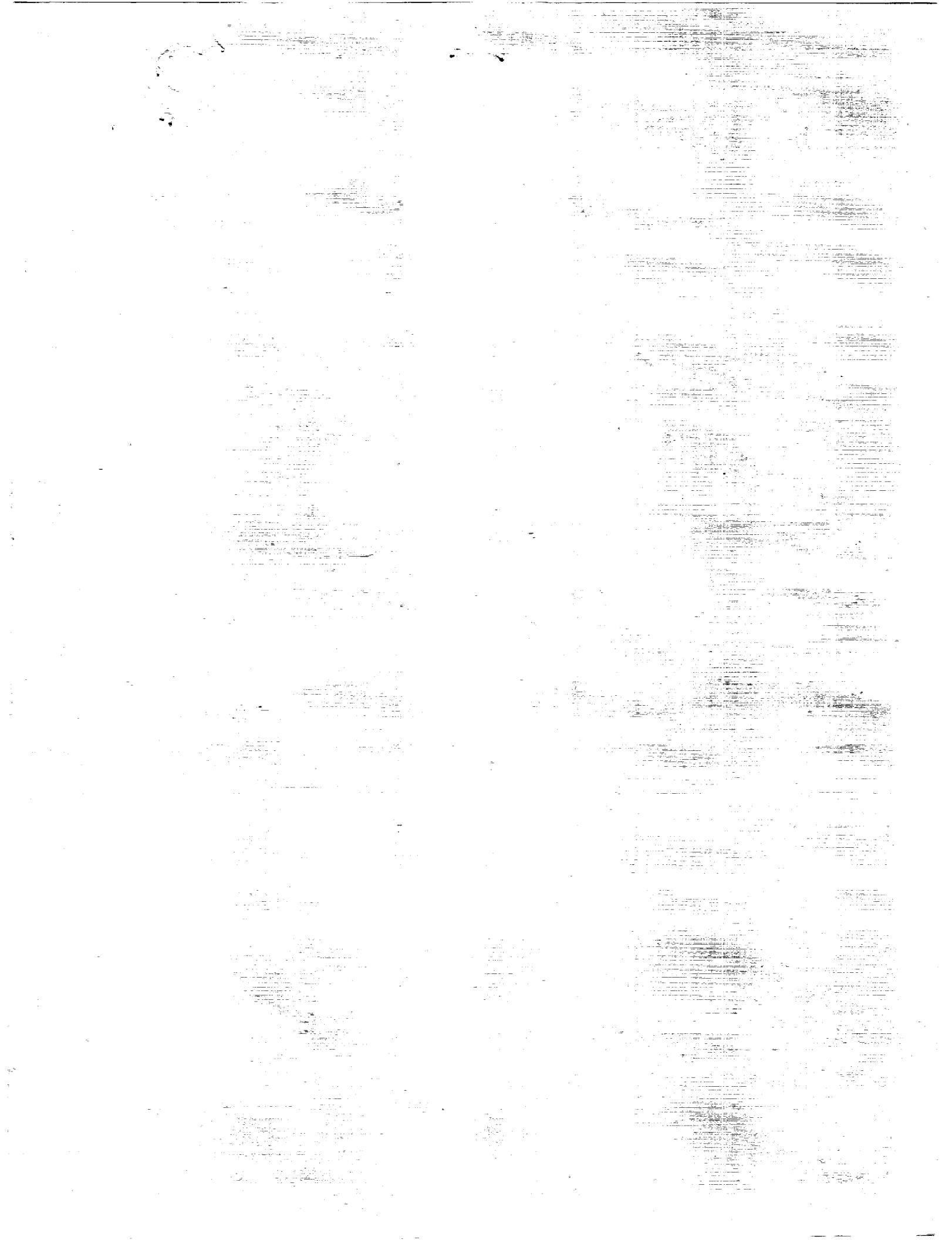
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Anita C. Brenner,  
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Thomas V. Martin,  
and Robert A. Bindshadler

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Information Division



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## PREFACE

The data-processing methods and ice data products derived from Seasat radar altimeter measurements over the Greenland ice sheet and surrounding sea ice are documented in this first volume of a series. The corrections derived and applied to the Seasat radar altimeter data over ice are described in detail, including the editing and retracking algorithm to correct for height errors caused by lags in the automatic range tracking circuit. The methods for radial adjustment of the orbits and estimation of the slope-induced errors are given. The various levels of ice data sets are described in this report, but the user is referred to Volumes 2 (Greenland) and 4 (Antarctica) for more detailed descriptions of the gridded elevation data sets and the geo-referenced data bases.





## SECTION 1.0 INTRODUCTION

This volume is the first in a series documenting the data-processing methods and ice data products derived from satellite radar altimeter measurements over the ice sheets of Greenland and Antarctica and surrounding sea ice. The data-processing procedures and corrections derived and applied to the Seasat radar altimeter data are described in detail in this report. A flowchart depicting the procedures involved in obtaining the various data products is given in Figure 1. A detailed description of the editing and retracking algorithm is given in Section 2, along with descriptions of the other corrections. The methods for radial adjustment of the orbits and estimation of the slope-induced errors are described. The various levels of ice data sets produced are described in this report, but the user is referred to Volumes 2 and 4 for more detailed descriptions of the gridded elevation data set and the geo-referenced data base.

The input Seasat radar altimeter data, in the form of Geophysical Data Records (GDR's) and Sensor Data Records (SDR's) produced by NASA's Seasat project at the Jet Propulsion Laboratory, were obtained from the NOAA Environmental Satellite Data and Information Service (EDIS) archive on about 1000 magnetic tapes. Development of the data processing methods, the production of higher-level geophysical data products, and analysis and evaluation of the data have been supported at the Goddard Space Flight Center by funding for research and data analysis, provided primarily by NASA's Ocean Processes Program and by the Climate program. Computer programming and technical assistance has been provided by the EG&G Washington Analytical Services Center, Inc. until January 1989 and by ST Systems Corporation since then. Numerous other individuals have provided valuable assistance.

Results have been reported in refereed scientific literature (e.g., Brenner et al., 1983; Martin et al., 1983; Zwally et al., 1983; Thomas et al., 1983; and Gundestrup et al., 1986). In addition, elevation data in various forms have been provided to other scientists and placed in the National Snow and Ice Data Center (NSIDC) and the National Space Science Data Center (NSSDC). The purpose of this series of reports is to document technical details and provide guidance to users of the ice data products.

While all reasonable quality-control efforts have been made to eliminate erroneous data, some data of questionable quality is likely to have persisted, particularly in the lower-level data products. Users should apply normal standards of scientific caution in their use of the data.

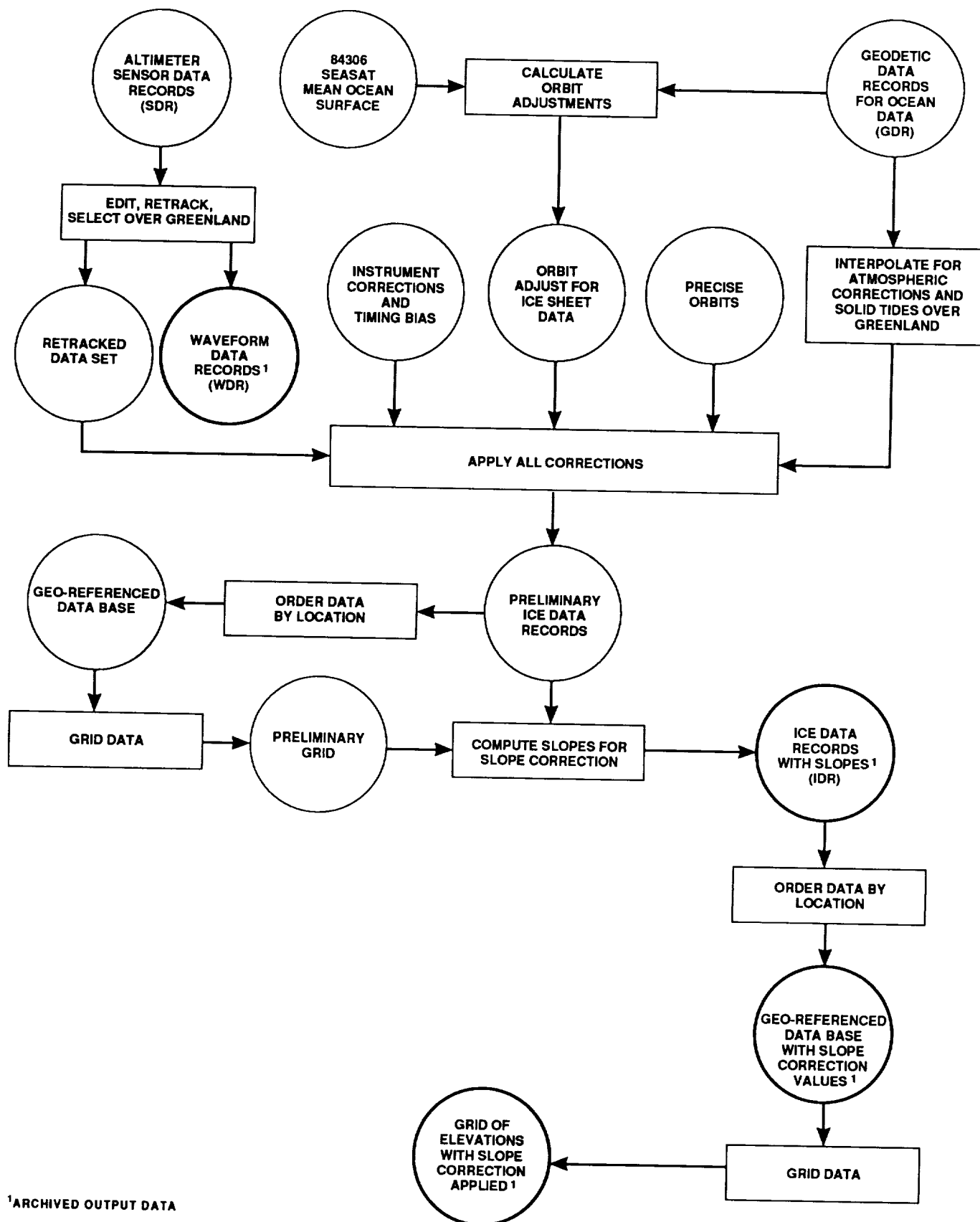


Figure 1. Processes Involved in Obtaining Data Products

The current list of reports is:

Satellite Radar Altimetry over Ice, Volume 1: Processing and Corrections of Seasat Data over Greenland, July 1989. This volume.

Satellite Radar Altimetry over Ice, Volume 2: User's Guide for Greenland Elevation Data from Seasat, July 1989. NASA Reference Publication. \_\_\_\_\_.

Satellite Radar Altimetry over Ice, Volume 4: User's Guide for Antarctic Elevation Data from Seasat, July 1989. NASA Reference Publication. \_\_\_\_\_.

Volume 3 will be the Antarctic equivalent of Volume 1. Additional volumes will include descriptions of the data sets being produced by NASA from the radar altimeter data acquired by the U.S. Navy's GEOSAT, using methods similar to those for the Seasat data.

The Seasat spacecraft (e.g., Lame and Born, 1982 and Lame et al., 1980) was launched in late June 1978, and during its brief 110-day lifetime, collected 90 days of nearly continuous radar altimeter data from July 9 through October 10 between the latitudes of 72°S and 72°N. Although designed only for measurements over water, the Seasat radar altimeter (MacArthur, 1978; Tapley et al., 1982; and Townsend, 1980), acquired more than 600,000 useful altimeter range measurements over the continental ice sheets of Greenland and Antarctica.

Over sloping and undulating surfaces, such as ice covered land, or surfaces with highly-variable reflecting characteristics, such as in regions of sea ice, the range to the surface and the characteristics of the received radar pulse changed faster than the response capability of the altimeter electronics. Consequently, it has been necessary to correct each range value for lags of the altimeter range servo-tracking circuitry by a procedure called retracking (Martin et al., 1983). The retracking correction typically had a mean value of + 1.4 m as applied to the surface elevation, a standard deviation of 2.9 m, and maximum and minimum values of  $\pm 15$  m. In addition, the pulse-limited footprint (1.6 km minimum diameter), which was located near the satellite nadir point over the relatively flat ocean, was in general located anywhere within the beam-limited footprint (22 km in diameter) over sloping surfaces. The resulting slope-induced error, which was nearly 80 m over slopes of 0.8 degree, can be partially corrected using the procedures described in Brenner et al., 1983. Corrections are also made for errors in orbit determination, atmospheric propagation path-length variations, and earth and ocean tides.

Elevation measurements were obtained at 0.1-second intervals, corresponding to 662-m intervals along the subsatellite ground track. The precision of the corrected range measurements is about 1.6 m overall with a minimum of about 0.25 m in the smoothest regions of the ice sheets

(Zwally et al., 1983). The 5- to 10- cm precision over the ocean is for 1-sec data averages.) The absolute accuracy of the elevations is primarily determined by the limitations on the correction methods for the slope-induced errors and uncertainties in the geoid reference level.

The principal ice data sets produced and/or retained are:

Level 4: Contour maps and gridded elevations with respect to earth ellipsoid and sea level (e.g., this Volume and Volume 2).

Level 3: Geo-referenced data base including all individual elevation measurements (including time, latitude/longitude positions, and slope-correction estimates) accessible by geographic cells (e.g., this Volume and Volume 2).

Level 2: Ice Data Records (IDR's). Orbital-format data records including altimeter parameters, corrected elevations, latitude/longitude positions, AGC, applied corrections, retracking beta parameters, and estimates of along-track and cross-track slope corrections. (this Volume)

Level 1: Waveform Data Records (WDR's). Orbital-format data records including waveform amplitudes by gate, ranges, AGC, and latitude/longitude positions. (this Volume)

Sensor Data Records (SDR's)

Geodetic Data Records (GDR's)

## SECTION 2.0

### ICE DATA RECORDS

The Seasat altimeter data were released in two forms: the Altimeter Sensor Data Record (hereafter referred to as SDR), and the Geophysical Data Record, GDR. The SDR's were obtained from the NOAA/EDIS archives and contain, among other quantities, the telemetered range measurements between the spacecraft and earth's surface, averaged radar return pulses, the altimeter status flags and the satellite latitude, longitude, and elevation. The data are output in 0.098-sec intervals. The GDR's contain processed SDR data averaged over 1-sec intervals, and the sensor, atmospheric, and surface dynamic corrections necessary to utilize the data in detailed geodetic work. Data over the ice sheets are not available from the GDR's.

To obtain the ice sheet elevation measurements, data from the SDR's are used and the appropriate corrections and adjustments applied. This subset of ice sheet data obtained from the SDR's is referred to as ice data records or IDR's. A detailed description of these records may be found in Table 1. The surface heights, located in bytes 73-76 of the IDR, are referenced to the IUGG 1980 Geodetic Reference Ellipsoid (Moritz, 1980), which is defined with a 6378.137-km semi-major axis of the earth and a flattening ratio of 1/298.257. Heights relative to sea level can be calculated by subtracting the geoid value from the surface height. Geoid values, linearly interpolated from a one-by-one degree GEM10-B geoid grid, are located in bytes 61-64 of the IDR.

Figure 2 is a map of Greenland which depicts the coverage obtained from the IDR's after data were edited and retracked (see Section 2.1). The gaps in the data are a result of the altimeter not being able to maintain valid height measurements over the rougher surfaces of the ice sheets. Table 2 gives a concise catalog of the available Seasat Greenland IDR data. Included in this table are the start and stop locations of each rev, the number of points in each rev, and the data base bins (see Section 4.0) through which each rev traverses. The rev numbers are ordered such that all ascending passes are listed first, ordered by increasing latitude as they cross 315 degrees East Longitude. Then the descending passes are listed using the same ordering criterion as for the ascending passes.

#### 2.1 EDITING AND RETRACKING

As explained in Section 1.0, Seasat altimetry returns over non-ocean surfaces required special processing in order to calculate meaningful height measurements. To understand this processing one must first have an understanding of the return itself.

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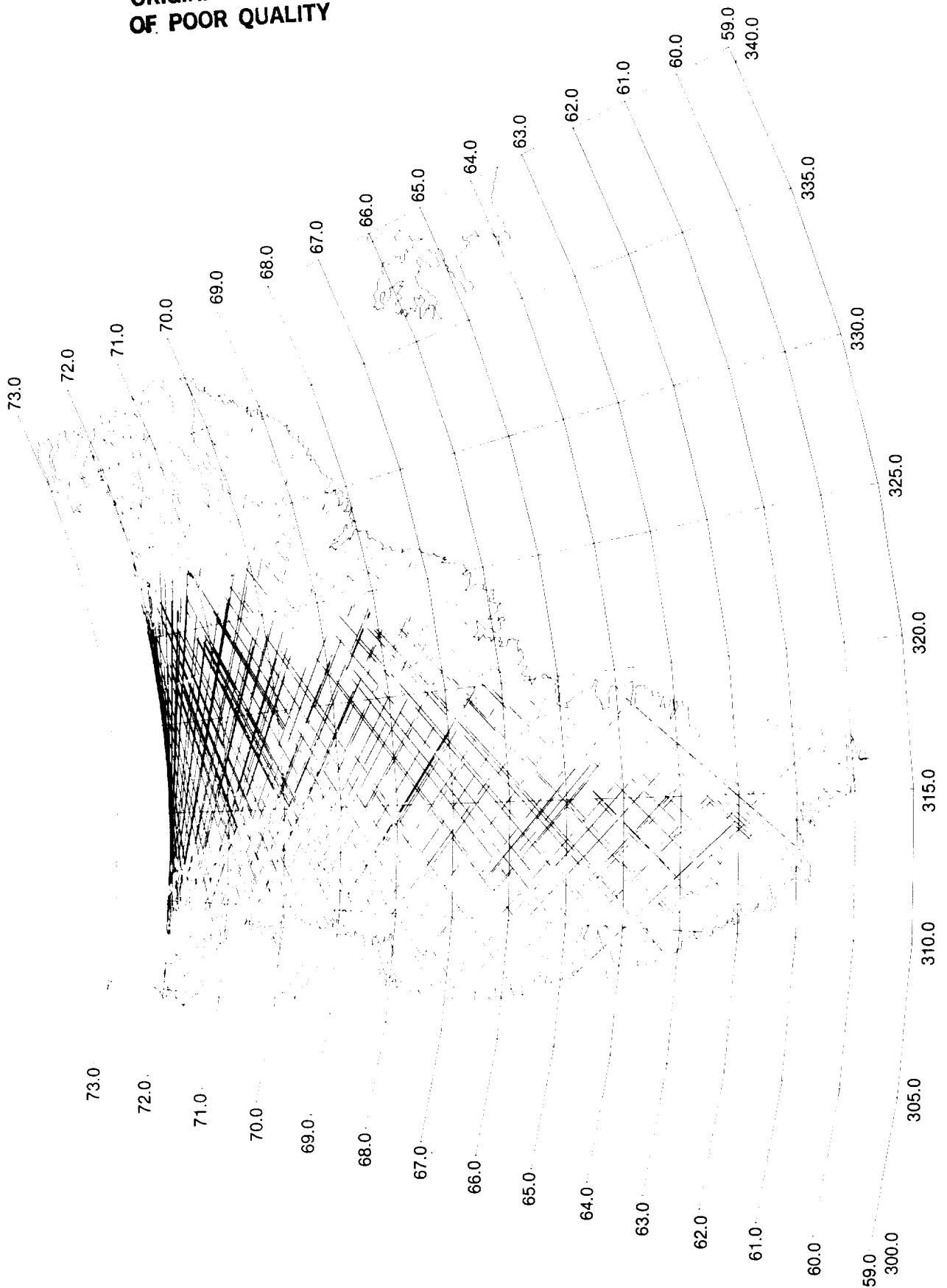


Figure 2. Seasat Greenland Groundtracks

Each altimeter return, referred to as a waveform, consists of the output of a set of 63 gates that span a height window of approximately 30 m. Each gate has a level of return associated with it measured in counts. A typical ocean return from Seasat is presented in Figure 3. The level of return in the first 22 gates is at the noise or pre-pulse level of 4 or 5 counts. The level quickly increases to a relative maximum and then slowly decreases over the latter portion of the window. There are three half-gates at the center that have a spacing of 23 cm instead of 46 cm. The tracking gate is the center of these. The on-board tracker attempts to keep the center of the return leading edge positioned at the tracking gate by predicting the travel time of each pulse based on previous returns. The measurement telemetered from the altimeter is equivalent to the travel time to the tracking gate.

Altimeter returns over non-ocean surfaces vary greatly from this ocean return. Figure 4 shows representative returns over ice sheet surfaces for a Seasat pass over Antarctica (Martin et al., 1983). The Figure 3 sea ice returns are represented by one or more sharp spikes that may or may not be at the tracking gate. As the altimeter travels onto the ice shelf, acquisition is lost, represented as a flat return. On the ice shelf the returns are shaped similar to the oceans, but again are not always centered at the tracking gate. As the satellite moves over the ice sheet, acquisition is again lost temporarily. Over the ice sheets the returns are noisy, have multiple leading edges, and the mid-point of the first leading edge is not always aligned with the tracking gate.

The measurement telemetered from the on-board tracker needs to be corrected for the variation of the mid-point of the leading edge from the tracking gate. This retracking correction,  $\Delta H_{\text{ret}}$  is calculated as

$$\Delta H_{\text{ret}} = (G_m - G_t) * g_{2m} \quad (2.1)$$

where

$G_m$  = gate of the mid-point of the leading edge (see Sections 2.1.3–2.1.4),

$G_t$  = the tracking gate (29.5 where the whole gates are numbered from 0 to 59; see Figure 3), and

$g_{2m}$  = the conversion from gates to meters = .4684375 m/gate.

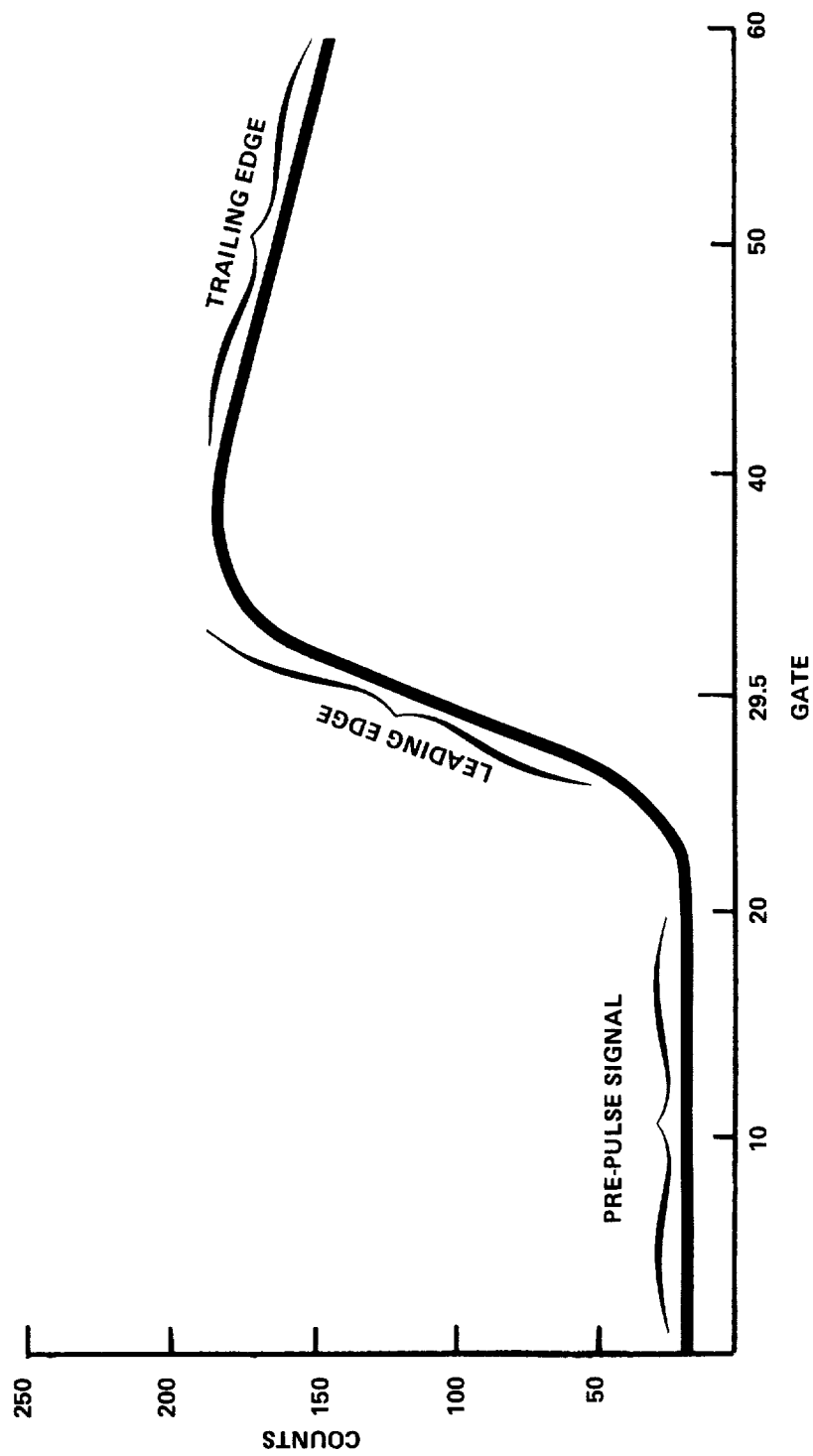


Figure 3. Ideal Ocean Altimetry Return Pulse



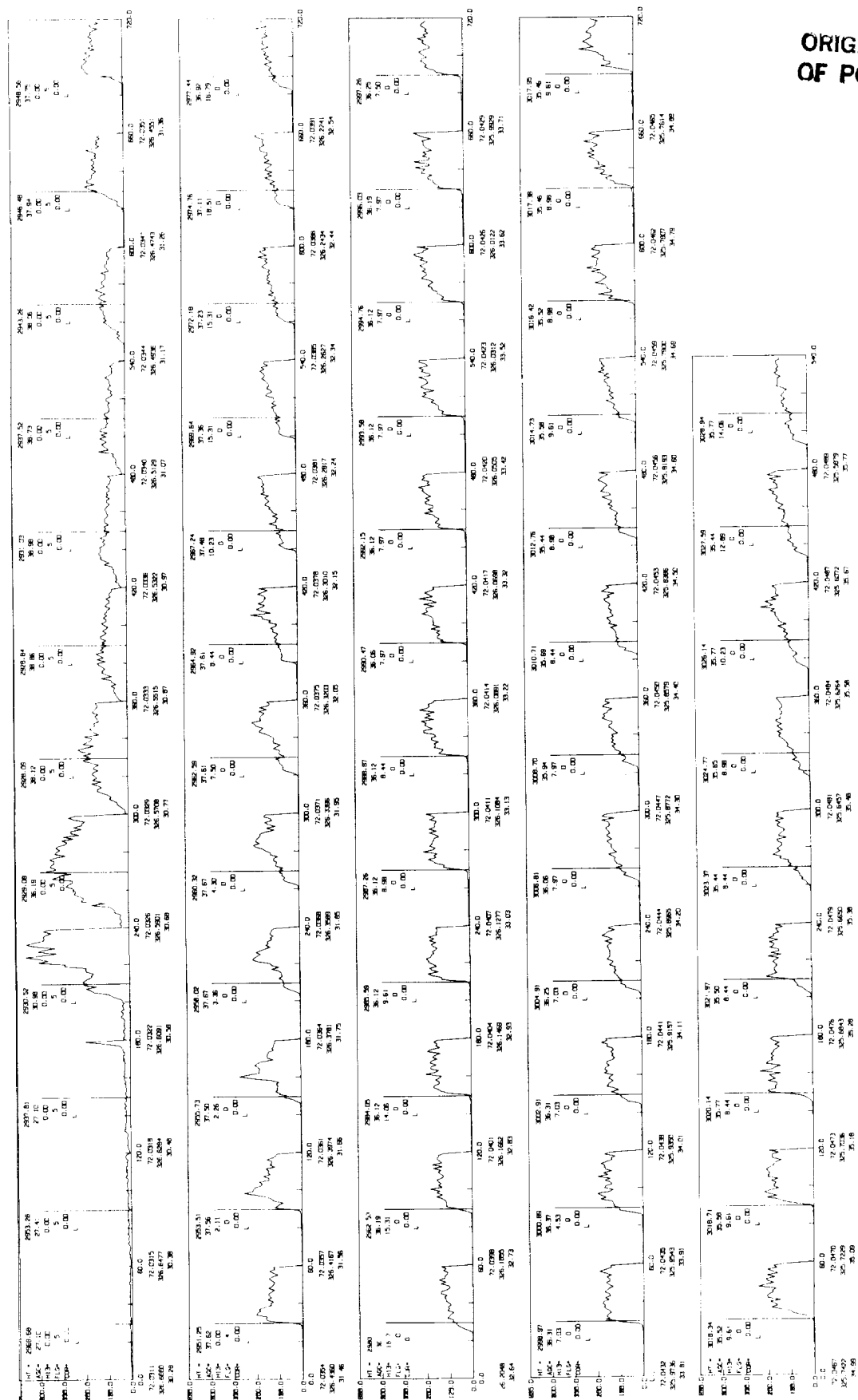


Figure 4. Seasat Ice Sheet Altimeter Waveforms

It then follows that

$$H_{\text{ret}_t} = H_{\text{meas}_t} + \Delta H_{\text{ret}_{t+1}} \quad (2.2)$$

where

$H_{\text{ret}_t}$  = the retracked altimeter measurement at time  $t$ ,

$H_{\text{meas}_t}$  = the measurement calculated by the on-board tracker at time  $t$ , and

$\Delta H_{\text{ret}_{t+1}}$  = the retracking correction calculated from waveform at time  $t+.098$  sec.

Due to the return being telemetered one time step later, the retracking correction for the measurement at time  $t$  is calculated from the return at time  $t+.098$  sec. Methods have been developed at NASA/GSFC to calculate the  $\Delta H_{\text{ret}}$  for returns over the ice sheet, ice shelf, and sea ice which can yield valid height measurements. A detailed description of these procedures may be found in Sections 2.1.3 and 2.1.4. Parameters resulting from these retracking techniques may be found in bytes 109-144 of the IDR. The criteria used to automatically select and discriminate between different types of returns are described in the next two sections.

#### 2.1.1 Selecting Retractable Non-Ocean Altimetry Returns

The SDR for Seasat includes all telemetered altimeter data even when the instrument was in calibration or standby mode. Since valid measurements could be acquired when the tracker was in acquisition mode, all data that are not in acquisition or track modes are discarded.

All tracking and acquisition returns have to meet two initial tests to determine if the waveform actually represents the initial return, or if the return is outside the tracking window.

- 1) The counts in the first gate must be less than 100:
- 2) There must be at least one gate with a count value greater than 25.

#### 2.1.2 Categorizing the Returns

The remaining returns are then categorized into two groups. Group one will be referred to as specular and consists of those returns that display a sharp spike. Returns in this category are usually found in regions of sea ice or over flat, desert-type surfaces. The second group, consisting of the remaining returns, is called diffuse and resembles ocean returns. These returns

are found over continental ice and the ice shelves. Different methods are used to retrack each group.

Returns are automatically categorized as either diffuse or specular depending on the existence of a significant spike in the return. To determine this the following algorithm is used. The noise level,  $Y_n$ , is calculated as the average number of counts in the first five gates. The maximum,  $Y_{max}$ , is calculated as the maximum number of counts in any gate. The value  $Y_{med}$  is then calculated using the equation

$$Y_{med} = \frac{(Y_{max} - Y_n)}{2.0} + Y_n . \quad (2.3)$$

The gate number,  $G_{mid}$ , is then found as the first gate where the number of counts exceeds  $Y_{med}$ . Two sums of consecutive counts from the signal are then formed,  $Y_{low}$  and  $Y_{high}$ , where

$$Y_{low} = \sum_{i=G_{mid}}^{i=G_{mid}+9} Y_i \quad (2.4)$$

$$Y_{high} = \sum_{i=G_{mid}+10}^{i=G_{mid}+20} Y_i \quad (2.5)$$

If  $G_{mid}$  is so large that there are less than 20 remaining gates, then the number of gates used to form the sums is adjusted. When the ratio of  $Y_{high}/Y_{low}$  is  $\leq 0.7$ , the return is considered specular.

### 2.1.3 Retracking Specular Type Returns

Specular waveforms are not found in the Seasat altimeter data over Greenland. This is probably due to the absence of sea ice near Greenland during Seasat's lifetime. As a result, all of the Greenland returns are retracked using the diffuse method. However, for the sake of completeness, the method used to retrack specularly shaped returns, which is employed in the region of the Antarctic, will be discussed.

Specular-type returns are defined for this procedure as being characterized by one or more extremely sharp spikes and are retracked by attempting to locate the mid-point or half-power point of the first significant spike. In addition, since the shape of the return essentially records topographic characteristics, parameters are also calculated which define the shape of a single-or double-peak return. Figure 5a shows the five-parameters required to define a single-peak return, while Figure 5b shows the nine-parameters required for a double-peak return.

### 2.1.3.1 Half-power Point of First Significant Peak

In determining the mid-point of the first significant spike, the location of this spike must first be found. The value of  $Y_{med}$ , which is calculated to determine whether or not the return is specularly shaped (Equation 2.3), is used. Starting with the gate number prior to  $G_{mid}$ , where  $G_{mid}$  is defined to be the gate number whose counts exceed  $Y_{med}$ , a gate is sought whose counts exceed or equal 25% of the difference between  $Y_{max}$  and  $Y_n$ . Upon finding this gate,  $G_{rise}$ , it is determined to be the first significant spike if the following conditions are met:

$$\begin{aligned} Y_{G_{rise}+1} - Y_{G_{rise}} &< 0. \\ \text{for } Y_{G_{rise}} &> Y_{max} * .3 \end{aligned} \quad (2.6)$$

where

$Y_{G_{rise}}$  is the counts for gate  $G_{rise}$ , and

$Y_{G_{rise}+1}$  is the counts for gate  $G_{rise}+1$ .

Smaller, more rounded waveforms, which might be encountered in the vicinity of an ice shelf, require that the following condition be met:

$$\begin{aligned} Y_{G_{rise}+1} - Y_{G_{rise}} &< (Y_{max} - Y_n) * .05 \\ \text{for } Y_{G_{rise}} &\leq Y_{max} * .3 \end{aligned} \quad (2.7)$$

$G_{rise}$  is incremented by one, up to the maximum number of gates, until one of the above conditions is met, after which the gate of the first significant spike,  $G_{1st}$ , and its corresponding counts,  $Y_{1st}$ , are used to determine the half-power point of the peak. The count value at the half-power point,  $Y_{mid1}$ , is determined as follows:

$$Y_{mid1} = \frac{(Y_{1st} - Y_n)}{2.0} + Y_n \quad (2.8)$$

The exact gate location of the half-power point,  $G_{tmid1}$ , is then determined by performing a linear interpolation for the count value  $Y_{mid1}$  located between gates  $X1$  and  $X2$ , with corresponding count value  $Y1$ ,  $Y2$ .

#### 2.1.3.2 Remaining Parameters to Define Shape

In order to define the exact shape of the specular returns depicted in Figures 5a and 5b, it is necessary to calculate several other parameters in addition to the noise level, the maximum counts of the first significant peak, and the gate location of the half-power point. For the single- and double-peak return, additional quantities which define the width of the significant peak and slope at the half-power point are defined. A double-peak return has four additional quantities calculated: the maximum counts for the second significant peak, the gate location of the half-power point for the second peak, the slope at the second half-power point, and the minimum counts found between the two significant peaks.

The slopes at the half-power point for both the first and second significant peaks,  $Slp1st$  and  $Slp2nd$ , are determined by the following algorithm:

$$Slp1st = \frac{Y2 - Y1}{X2 - X1} \quad (2.9)$$

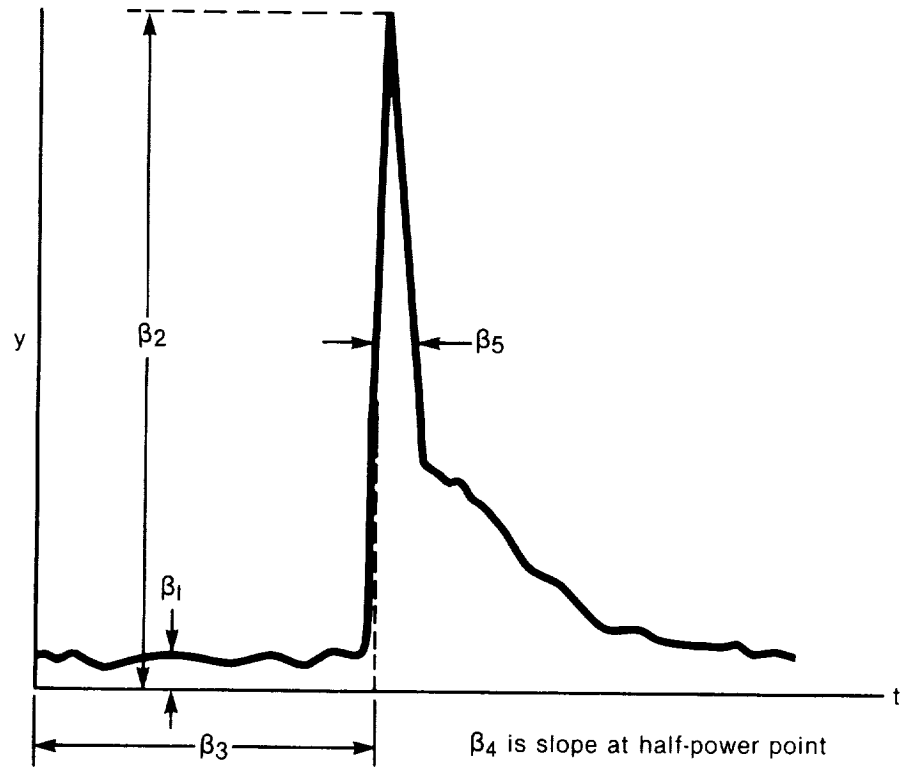
$Slp2nd$  uses the gate locations and corresponding counts determined to surround the half-power point of the second significant peak. These values are found in a manner similar to that of the first peak.

The actual existence of a second significant peak is determined in the following manner. Starting with the gate location of the first significant peak, the difference between counts of consecutive gates is monitored. As soon as the change in successive gates becomes negative, at gate location  $G_{entmin}$ , it is assumed that another peak has been encountered. At this point, a sum is formed,  $Totup$ , which totals the counts in all gates following the  $G_{entmin}$ . When  $Totup$  equals or exceeds 9% of  $Y1st$  then the second peak is considered significant. The gate at which the second peak occurs,  $X2nd$ , is determined to occur when the difference in the counts of consecutive gates becomes positive.

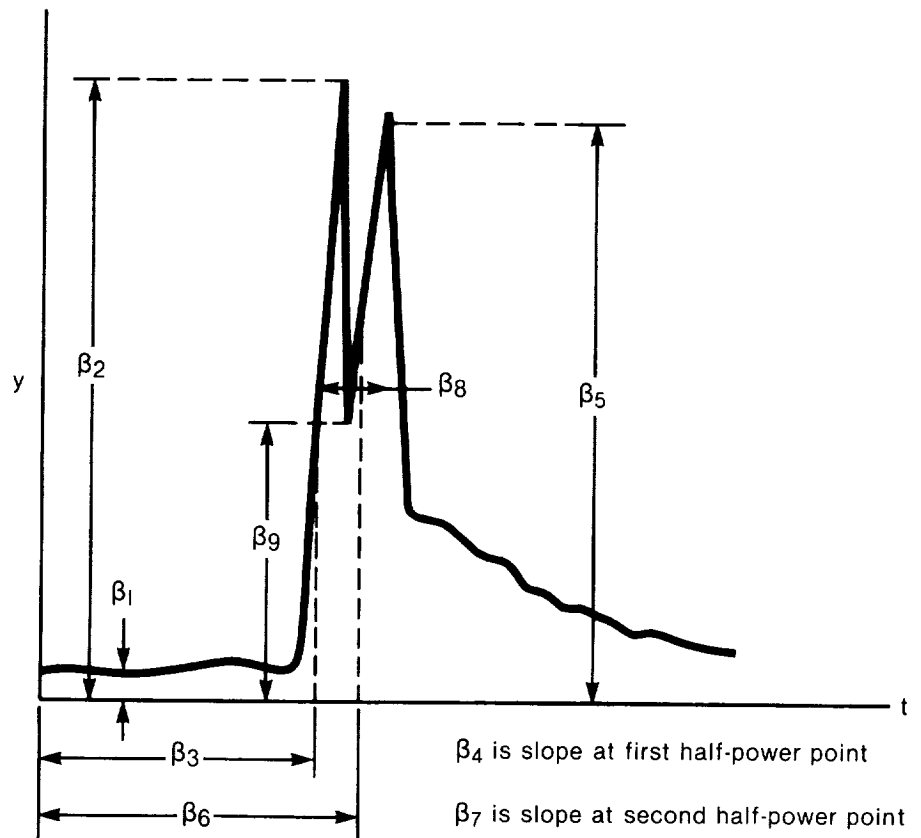
The counts at the second significant peak,  $Y2nd$ , are then used in the following manner to calculate the counts at the half-power point of the second peak,  $Y_{mid2}$ :

$$Y_{mid2} = \frac{(Y2nd - Cntmin)}{2} + Cntmin \quad (2.10)$$

(a) Single Peak



(b) Double Peak



Figures 5a and 5b. Specularly Shaped Waveforms

Again, a linear interpolation is performed in a manner identical with the first significant peak to determine the exact gate location of the second significant peak half-power point,  $G_{tmid2}$ .

The final parameter to be determined is the total width of the peak or peaks at the first half-power point. The width is defined as the number of gates between  $G_{tmid1}$  (Section 2.1.3.1) and the location,  $G_{trail}$ , where the trailing edge passes through  $Y_{mid1}$  (Equation 28). The width is computed as follows:

$$\text{Width} = G_{trail} - G_{tmid1} . \quad (2.11)$$

In summary, the parameters for a specular return with a single significant peak are as follows:

$$\begin{aligned} \beta_1 &= Y_n \\ \beta_2 &= Y_{1st} \\ \beta_3 &= G_{tmid1} \\ \beta_4 &= S_{lp1st} \\ \beta_5 &= \text{Width} . \end{aligned} \quad (2.12)$$

The parameters for a specular return with double significant peaks are as follows:

$$\begin{aligned} \beta_1 &= Y_n \\ \beta_2 &= Y_{1st} \\ \beta_3 &= G_{tmid1} \\ \beta_4 &= S_{lp1st} \\ \beta_5 &= Y_{2nd} \\ \beta_6 &= G_{tmid2} \\ \beta_7 &= S_{lp2nd} \\ \beta_8 &= \text{Width} \\ \beta_9 &= \text{Cntmin} . \end{aligned} \quad (2.13)$$

#### 2.1.4 Retracking Diffuse-Type Returns

The method used to retrack the diffuse return is to model the return with a function that has the retracking position (the mid-point of the leading edge) as a parameter. The Bayesian least-squares method (Ref. 8) is used to solve for the parameters of the function that best fit the return. For this method, initial estimates of the parameters must be provided. Weights are given to these initial estimates that designate how well each parameter is known relative to the others.

Residuals are then calculated between the return value and the function value at each gate. These residuals are weighted based on their proximity to the mid-point of the leading edge position. A minimum to the sum of these squared weighted residuals is sought by an iterative method which simultaneously adjusts all of the function parameters. The process is repeated until convergence or until the maximum number of iterations is reached. Because linear methods are used to solve a non-linear problem the procedure can be numerically unstable. Checks are done to assure the reasonableness of the results. The key to making this method function correctly is in the choice of the initial estimates and weighting functions.

The theory of solving for the function parameters using Bayesian least-squares can be found in Ref. 8. The actual equations used will be presented here without justification.

Given an overdetermined set of equations  $MX=R$  where

$$M = \text{the matrix of partials} \quad \begin{bmatrix} \frac{\partial c_1}{\partial \beta_1} & \dots & \frac{\partial c_1}{\partial \beta_n} \\ \vdots & & \vdots \\ \frac{\partial c_m}{\partial \beta_1} & \dots & \frac{\partial c_m}{\partial \beta_n} \end{bmatrix} \quad m > n \quad (2.14)$$

$$x = \text{column vector} = \begin{bmatrix} \beta_{c1} - \beta_1 \\ \vdots \\ \beta_{cn} - \beta_n \end{bmatrix} \quad (2.15)$$

$$R = \begin{bmatrix} m_1 & -c_1 \\ \vdots & \vdots \\ m_m & -c_m \end{bmatrix} \quad (2.16)$$

and

$m_i$  = observed value (counts at  $t=\text{gate } i$ ),

$c_i$  = calculated values of  $m_i$  based upon a given set of parameters  $\beta$ ,



$\beta_j$  = current best estimate of the model parameters  $\beta$ ,

$\beta_{cj}$  = corrected best estimate of the model parameters  $\beta$ ,

$i$  = gate number (0 – 59), and

$n$  = number of parameters in the function.

We can then define a weight matrix,  $W$

$$W = \begin{bmatrix} wt_1 & & 0 \\ & \ddots & \\ 0 & & wt_m \end{bmatrix} \quad (2.17)$$

where  $wt_i$  is the weight associated with each observation  $i$ .

If we multiply both sides of the equation by  $W$  we get

$$WMX = WR .$$

Multiplying through by  $M^T$  gives

$$M^T WMX = M^T WR . \quad (2.18)$$

The solution of  $X$  is solved for as

$$X = [M^T WM]^{-1} M^T WR \quad (2.19)$$

where  $M^T WM$  is referred to as the normal matrix. To add information as to the validity of the current best estimate of the model parameters the a priori covariance matrix  $V_o$  is included

$$V_o = \begin{bmatrix} wt_{\beta 1} & & 0 \\ & \ddots & \\ 0 & & wt_{\beta n} \end{bmatrix} \quad (2.20)$$

where  $wt_{\beta_j}$  = weight associated with the a priori value of parameter j. This matrix is then added to the normal matrix before it is inverted so the equation becomes

$$X = [M^T W M + V_0]^{-1} M^T W R . \quad (2.21)$$

X then is the vector giving the new best estimate of the  $\beta$  parameters.

#### 2.1.4.1 The Function Representing the Altimeter Return

It has been shown (Miller and Brown, 1974) that the mean return waveform over a Gaussian surface can be mathematically described using the function

$$c(t) = \beta_1 + \beta_2 * P(W) \quad (2.22)$$

where

$$P(W) = \int_{-\infty}^W Z(q) dq \quad (2.23)$$

$$Z(q) = \frac{1}{\sqrt{2\pi}} \exp\left(-\frac{q^2}{2}\right) \quad (2.24)$$

$$W = \frac{t - \beta_3}{\beta_4} . \quad (2.25)$$

This assumes that the pointing angle errors have negligible effects on the waveform shape. This also represents the ice sheet waveforms very well if it is modified to include a slope to the trailing edge. The modified function used to represent the diffuse-type waveforms is chosen as

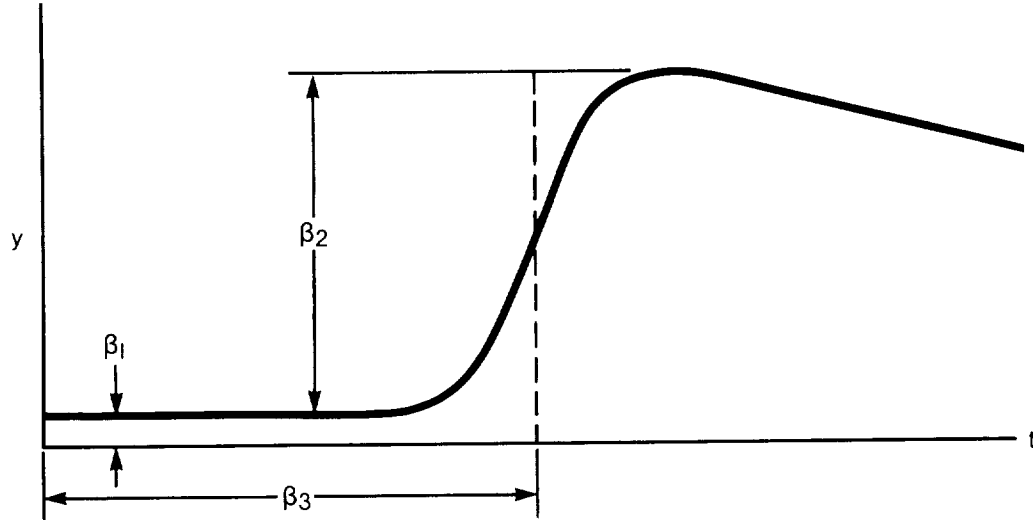
$$c(t) = \beta_1 + \beta_2(1 + \beta_5 Q(x)) P(W) \quad (2.26)$$

where

$$\begin{aligned} Q(x) &= 0 \text{ for } t < \beta_3 + 0.5 \beta_4 \\ &= t - x \text{ for } t > \beta_3 + 0.5 \beta_4 . \end{aligned}$$

This is plotted in Figure 6a where

(a) Single-Ramp Function



$\beta_4$  is the waveform risetime parameter

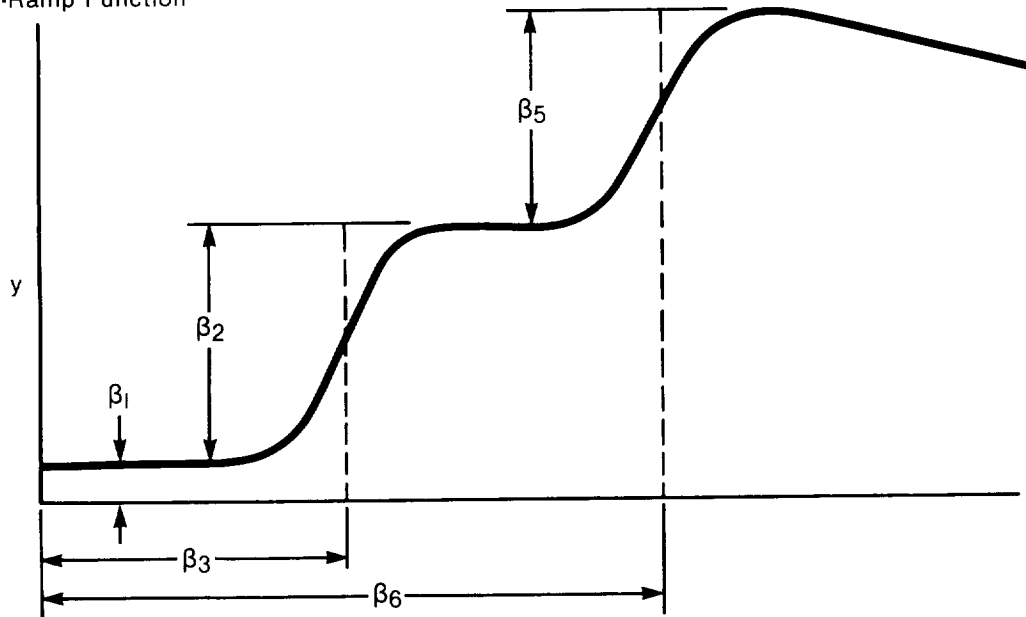
$$y = \beta_1 + \beta_2 (1 + \beta_5 Q) P \frac{(t - \beta_3)}{\beta_4} \quad \text{where } Q = 0 \text{ for } X < \beta_3 + 0.5 \beta_4$$

$$= 1 \text{ for } X \geq \beta_3 + 0.5 \beta_4$$

$$X = t - (\beta_3 + 0.5 \beta_4)$$

$$P(z) = \int_{-\infty}^z \frac{1}{\sqrt{2\pi}} \exp(-q^2/2) dq$$

(b) Double-Ramp Function



$\beta_4$  and  $\beta_7$  are risetime parameters for the 1st and 2nd ramp respectively

$$\text{Where } y = \beta_1 + \beta_2 P \frac{(t - \beta_3)}{\beta_4} (1 + \beta_9 Q(x_1)) + (\beta_5 P \frac{(t - \beta_6)}{\beta_7} (1 + \beta_3(Q(X_2)))$$

$$X_1 = t - \beta_3 - 0.5 \beta_4$$

$$X_2 = t - \beta_6 - 0.5 \beta_7$$

$$Q(x) = 0 \text{ for } x < 0$$

$$= 1 \text{ for } x \geq 0$$

$$P(z) = \int_{-\infty}^z \frac{1}{\sqrt{2\pi}} \exp(-q^2/2) dq$$

Figures 6a and 6b. Diffusely Shaped Waveforms

$$x = \beta_3 + 0.5 \beta_4 .$$

The partials of this function with respect to each parameter are

$$\frac{\partial c}{\partial \beta_1} = 1.0 \quad (2.27)$$

$$\frac{\partial c}{\partial \beta_2} = P[W] + \beta_5 Q[P[W]] \quad (2.28)$$

$$\frac{\partial c}{\partial \beta_3} = -\beta_2 \left\{ \frac{(1+\beta_5 Q)}{\beta_4} \frac{\partial P}{\partial W} + P(W) \beta_5 \right\} \quad (2.29)$$

$$\frac{\partial c}{\partial \beta_4} = \beta_2 \left\{ \frac{(1+\beta_5 Q)}{\beta_4} \frac{\partial P}{\partial W} W + \beta_5 \frac{P(W)}{2} \right\} \quad (2.30)$$

$$\frac{\partial c}{\partial \beta_5} = \beta_2 Q[P[W]] \quad (2.31)$$

where

$$\frac{\partial P}{\partial W} = \frac{1}{\sqrt{2\pi}} \exp \left( -\frac{W^2}{2} \right) .$$

The value of  $\beta_3$  is the mid-point of the leading edge, Gm. As previously noted, some of the returns display multiple leading edges. A nine-parameter function is used to represent these returns, where the mid-point of the first leading edge is still  $\beta_3$ . The mid-point of the second leading edge,  $\beta_6$ , probably represents a return from another surface in the footprint and is being stored for future use. The nine-parameter function is

$$c(t) = \beta_1 + \beta_2 P(W_1) (1 + \beta_9 Q(x_1)) + \beta_5 P(W) (1 + \beta_8 (Q(x_2))) \quad (2.32)$$

This is plotted in Figure 6b where

$$x_1 = t - \beta_3 - 0.5 \beta_4$$

$$x_2 = t - \beta_6 - 0.5 \beta_7$$

$$W_1 = \frac{t-\beta_3}{\beta_4}$$

$$W_2 = \frac{t-\beta_6}{\beta_7}$$

The partials of this nine-parameter function are

$$\frac{\partial c}{\partial \beta_1} = 1.0 \quad (2.33)$$

$$\frac{\partial c}{\partial \beta_2} = P(W_1) [1+\beta_9] Q_1 \quad (2.34)$$

$$\frac{\partial c}{\partial \beta_3} = -\beta_2 \left[ \frac{(1+\beta_9 Q_1)}{\beta_4} \frac{\partial P}{\partial W_1} + P(W_1) \beta_9 \right] \quad (2.35)$$

$$\frac{\partial c}{\partial \beta_4} = -\beta_2 \left[ \frac{(P(W_1)\beta_9)}{2} + \frac{(1+\beta_9 Q_1)}{\beta_4} \frac{\partial P}{\partial W_1} W_1 \right] \quad (2.36)$$

$$\frac{\partial c}{\partial \beta_5} = 1 + \beta_8 Q_2 P(W_2) \quad (2.37)$$

$$\frac{\partial c}{\partial \beta_6} = -\beta_5 \left[ P(W_2) \beta_8 + \frac{(1+\beta_8 Q_2)}{\beta_7} \frac{\partial P}{\partial W_2} \right] \quad (2.38)$$

$$\frac{\partial c}{\partial \beta_7} = -\beta_5 \left[ \frac{(1+\beta_8 Q_2)}{\beta_7} W_2 \frac{\partial P}{\partial W_2} + \frac{P(W_2)}{2} \beta_8 \right] \quad (2.39)$$

$$\frac{\partial c}{\partial \beta_8} = \beta_5 Q_2 P(W_2) \quad (2.40)$$

$$\frac{\partial c}{\partial \beta_9} = \beta_2 Q_2 P(W_1) \quad (2.41)$$

#### 2.1.4.2 Setting the Initial Estimates for the Parameters

Initial estimates of each parameter are calculated from each individual return. To calculate these the general shape of the waveform is mathematically described by defining a mean slope and average value (bias) for every whole gate. For gates 4 through 56, the mean slopes and biases correspond to a straight line that is fit using least-squares minimization through the gate in question and the six surrounding gates. The biases for gates 1 through 4 are taken as the gate values and the slopes are defined as zero. For gates 57 through 60 the biases are the gate values and the slopes are defined as the slope calculated for gate 56. This set of slopes and biases is then interrogated to determine the locations of the leading edges and how many occur in the waveform.

The conditions required for a leading edge at gate  $I_r$  are:

- 1) The Slope( $I_r$ ) must be greater than a given value, Thsl. A value of Thsl=0.5 count/gate is used to find the first leading edge, for succeeding leading edges Thsl is set to 1.0 count/gate. These numbers were chosen by visually and mathematically evaluating many typical ice sheet waveforms to determine when a leading edge designating a valid return could be perceived.
- 2) The Slope( $I_r$ ) must be a relative maximum, i.e.:

$$\text{Slope}(I_r) > \text{Slope}(I_r - 1)$$

$$\text{Slope}(I_r) > \text{Slope}(I_r + 1) \quad .$$

- 3) There must be a significant increase in counts after the leading edge compared with that before the leading edge, i.e.:

$$\text{Bias}(\text{Ir}+3) - \text{Bias}(\text{Ir}-3) > \text{Thbs}$$

where

$$\begin{aligned} \text{Thbs} &= 13.5 \text{ counts for first leading edge} \\ &= 20.0 \text{ counts for succeeding leading edge.} \end{aligned}$$

- 4) If there was a leading edge already detected within 3 gates of Ir then the location is taken as that with the larger slope.

The initial estimates of the function parameters are then calculated from the position of the leading edge(s) and the Slopes and Biases. The five-parameter function (2.26) is used when only one leading edge is found, the nine-parameter function (2.32) is used when two or more leading edges are found.

Initial estimates,  $\beta_1^0$ , and the corresponding standard deviations of these estimates, Sig(1) through Sig(5), for the five-parameter function are defined as:

$$\begin{aligned} \beta_1^0 &= \text{Bias}(4) \text{ (counts)} & \text{Sig}(1) &= 0.01 \text{ (count)} \\ \beta_2^0 &= \text{Bias}(\text{Ir}+3) - \text{Bias}(4) \text{ (counts)} & \text{Sig}(2) &= 10.0 \text{ (counts)} \\ \beta_3^0 &= \text{Ir (gate)} & \text{Sig}(3) &= .1 \beta_0(4) \text{ (gates)} \\ \beta_4^0 &= \{[\text{Bias}(\text{Ir}+3) - \text{Bias}(\text{Ir}-3)] / \\ &\quad \text{Slope}(\text{Ir})\} * 0.5 \text{ (gate)} & \text{Sig}(4) &= .01 \beta_0(4) \text{ (gates)} \\ \beta_5^0 &= 0.0 \text{ (count/gate)} & \text{Sig}(5) &= .01 \text{ (count/gate).} \end{aligned} \tag{2.42}$$

Initial estimates and the corresponding standard deviations for the nine-parameter function are defined as:

$$\begin{aligned}
\beta_1^o &= \text{Bias}(4) \text{ (counts)} & \text{Sig}(1) &= .01 \text{ (count)} \\
\beta_2^o &= \text{Bias}(\text{Ir}1+3) - \text{Bias}(4) \text{ (counts)} & \text{Sig}(2) &= 0.1 \text{ (count)} \\
\beta_3^o &= \text{Ir}1 \text{ (gates)} & \text{Sig}(3) &= .05 \beta_o(4) \text{ (gates)} \\
\beta_4^o &= \{[\text{Bias}(\text{Ir}1+3) - \text{Bias}(\text{Ir}1-3)] / \text{Slope}(\text{Ir}1)\} * 0.5 \text{ (gates)} & \text{Sig}(4) &= .005 \beta_o(4) \text{ (gates)} \\
\beta_5^o &= \text{Bias}(\text{Ir}2+3) - \text{Bias}(\text{Ir}1+3) \text{ (counts)} & \text{Sig}(5) &= 0.1 \text{ (count)} \\
\beta_6^o &= \text{Ir}2 \text{ (gates)} & \text{Sig}(6) &= .05 \beta_o(7) \text{ (gates)} \\
\beta_7^o &= \{[\text{Bias}(\text{Ir}2+3) - \text{Bias}(\text{Ir}2-3)] / \text{Slope}(\text{Ir}2)\} \text{ (gates)} & \text{Sig}(7) &= .005 \beta_o(7) \text{ (gates)} \\
\beta_8^o &= 0.0 \text{ (count/gate)} & \text{Sig}(8) &= .01 \text{ (count/gate)} \\
\beta_9^o &= 0.0 \text{ (count/gate)} & \text{Sig}(9) &= .01 \text{ (count/gate)}
\end{aligned}
\tag{2.43}$$

where

Ir1 is the predicted gate corresponding to the mid-point of the first leading edge

Ir2 is the predicted gate corresponding to the mid-point of the second leading edge.

#### 2.1.4.3 Calculating the Weight Matrix, W

The weight associated with each observation,  $wt_i$ , is selected to optimize the fit in the vicinity of the leading edge.

$$wt_i = 1 + K_1 * [\exp(K_2) + K_3] \tag{2.44}$$

where

$$K_1 = (I_{\text{ter}} - 1) * 0.5$$

$$I_{\text{ter}} = \text{iteration number}$$

$$K_2 = T_c + 0.5$$

$$= \text{Min}(K_2, 60)$$

$$= \text{Max}(K_2, 1)$$

$$T_c = X_1 - \beta_3 - \text{Max}(5.0, \beta_4) \text{ for 5-parameter function}$$



$$= X_i - \beta_6 - \text{Max}(5.0, \beta_7) \text{ for 9-parameter function}$$

$$X_i = \text{gate number of the } i\text{th observation}$$

for the five-parameter function

$$K_3 = 0 \text{ for } |T_c| \geq 2.0$$

$$= 1 \text{ for } |T_c| < 2.0$$

for the nine-parameter function

$$K_3 = 0 \text{ for } |T_c| \geq 5.0$$

$$= 1 \text{ for } |T_c| < 5.0$$

#### 2.1.4.4 Calculating the Covariance Matrix, $V_o$

A priori values of  $V_o$  are calculated from the sigmas in equations (2.42) and (2.43) as follows:

$$w_{t\beta_j} = wscale/Sig(j)^2 \quad (2.45)$$

$$wscale = 1 + .6 * K * H1/3/(120*g2m) \quad (2.46)$$

$$H1/3 = 1.875 * \beta_4$$

$$K = 4$$

Using the function,  $wscale$ , causes the initial estimate information to have a greater effect on the solution when the rise time is large.

After each iteration,  $n$ , the values of  $Sig(3)$ ,  $Sig(4)$  and  $K$  are altered as follows:

$$Sig(3) = Sig(3)_{n-1} * 0.1$$

$$Sig(4) = Sig(4)_{n-1} * 10.0$$

$$K = K_{n-1} + .5 \quad .$$

This has the effect of weighting the current best estimate of the leading edge position more and the rise time of the leading edge less. This has proven to speed up convergence.

#### 2.1.4.5 Method of Iteration

An iterative scheme is used starting out with the initial estimate of the  $\beta$  parameters. The Bayesian least-squares method is then used to solve for another set of  $\beta$  parameters that better fits the data. Iterations are performed always using the current set for the best estimate until  $\Delta H_{ret}$ , as calculated from  $\beta_3$  (2.1), converges to within 10 cm or the number of iterations exceeds 7.

Each succeeding set of  $\beta$  parameters is checked for reasonableness using these criteria:

$$\begin{aligned} 0.0 &< \beta_2 \\ 0.0 &< \beta_3 < 60.0 \\ 0.0 &< \beta_4 \\ \beta_3 &< \beta_6 < 60.0 \\ 0.0 &< \beta_7 . \end{aligned}$$

If any of the criteria fail, then the fit is considered unsuccessful and the waveform is discarded.

After convergence or the maximum number of iterations is reached, tests are then made to assure that the values reasonably represent the return. The rms of the residuals between the waveform and the function for the portion of the waveform from gate zero to just past the top of the leading edge is calculated.

$$RMS_E = \frac{\sum_{i=1}^{ledit} (C_i - m_i)^2}{ledit}$$

where

$$\begin{aligned} ledit &= \beta_3 + 0.5 \beta_4 \text{ for the five-parameter function} \\ &= \beta_6 + 0.5 \beta_7 \text{ for the nine-parameter function.} \end{aligned}$$

If  $RMS_E$  is greater than 20.0 counts then the fit is unacceptable. If the nine-parameter function is being fit and the process is unsuccessful, then the initial estimates are reset to

coincide with the initial estimates for the first leading edge and a five-parameter fit is tried. If problems occur during the five-parameter fit, the initial estimates are altered so that the leading edge position is taken as the gate,  $I_r$ , where Slope ( $I_r$ ) (as defined in Section 2.1.4.2) is a maximum for the waveform. If the fit is still unsuccessful, then the waveform is discarded.

The procedures explained here and the numerical values given yield the best results to date. Wherever possible values were chosen based on theory, but many times trial and error was necessary. At the time the Seasat Greenland data were processed, the procedures and numerical values differed slightly. There was no  $RMS_E$  check as explained in the last part of Section 2.1.4.5, nor were the initial parameter values altered if an unsuccessful fit was made. The variables that were different and their values for the Greenland processing were:

$$\begin{aligned} Thbs &= 5.0 \text{ counts for the first leading edge} \\ &= 10.0 \text{ counts for the second leading edge} \\ Sig(3) &= \beta_o(4) \quad (\text{for the five-parameter function}) \\ Sig(4) &= 0.1 \beta_o(4). \end{aligned}$$

A direct consequence of these differences was that the entire Greenland data set had to be visually reviewed to assure that the fit adequately represented the data. This resulted in approximately 1% of the data being discarded which would not have been rejected using newer methods. The newer methods described here identify these problems automatically.

## 2.2 SENSOR-RELATED CORRECTIONS

After the ice altimeter data are edited and retracked, the precise orbits from NASA/GSFC (PGS-S4) are used to calculate the measured ice sheet elevation above the ellipsoid (Lerch et al., 1982). Corrections are then applied to correct for sensor-related biases.

Both the time tag and center of gravity corrections are calculated using the algorithms released by JPL (Lorell, 1979). These are summarized below.

### 2.2.1 Time Tag Correction

The SDR time tag,  $t_{SDR}$ , is corrected for a track mode correction and a signal travel time correction so that the resultant data time,  $t$ , refers to the time of signal reflection from the ice sheet.

$$t = t_{\text{SDR}} - 0.0794 + H/c \quad (2.47)$$

where

$$c = 2.99792458 \times 10^8 \text{ m/sec,}$$

$$H = \text{spacecraft altitude in meters, and}$$

$$0.0794 \text{ is the track mode correction in seconds.}$$

### 2.2.2 Center of Gravity Correction

The correction applied to make the spacecraft center of gravity the height reference point is

$$\Delta H_{\text{cg}} = Z_{\text{cg}} - Z_{\text{cone}} \quad (2.48)$$

where

$$Z_{\text{cg}} = \text{the distance from the altimeter base plate to the spacecraft center of gravity. This varied during the flight due to maneuvers. Table S-07 of Lorell (1979) is used to obtain } Z_{\text{cg}}$$

$$Z_{\text{cone}} = -1.238 \text{ m which is the sum of the distance from the feed flange on the antenna to the base plate and a distance corresponding to a time bias in the electronic circuitry.}$$

This correction is located in bytes 49-52 of the IDR.

## 2.3 ATMOSPHERIC CORRECTIONS

The measurements are corrected for ionospheric and tropospheric refraction using parameters supplied by JPL on the GDR's (Lorell et al., 1980).

### 2.3.1 Ionosphere Correction

The ionosphere correction for the ice data,  $\Delta H_{\text{ION}}$ , is calculated by linearly interpolating from the ionosphere corrections on the GDR's. Bytes 57-60 on the IDR contain the value of this correction. A detailed description of the algorithm used is given in Lorell et al., (1980).

### 2.3.2 Troposphere Correction

The wet tropospheric correction is calculated using the following equations explained in Lorell et al., (1980).

$$\Delta H_{TROP_{WET}} = 2.277 \cdot 10^{-3} \cdot E_o (1.25503/T_K + 0.5) \quad (2.49)$$

where

$$E_o = 6.11 \cdot H_R \cdot 10^{(7.5 \cdot T_K - 273.16)/(T_K - 35.86)}$$

$T_K$  is the surface temperature calculated by assuming a linear temperature profile with boundary conditions:

$$\text{at sea level } T_K = 273.0K$$

$$\text{at 3200m above sea level } T_K = 243.0K, \text{ and}$$

$H_R$  is the relative humidity (assumed to be 100% over the ice sheet).

The dry tropospheric correction is calculated from the equation

$$\Delta H_{TROP_{DRY}} = 2.277 \cdot 10^{-3} \cdot \{P \cdot [1.0 + 0.0026 \cdot \cos(\phi)]\} \quad (2.50)$$

where

$\phi$  = subsatellite latitude,

$$P = P_o \cdot (1.0 - 1.1138 \cdot 10^{-4} \cdot Ht),$$

$P_o$  - is the atmospheric pressure interpolated from the GDR's, and

$Ht$  - is the ice sheet elevation above sea level in meters.

The total height correction due to the troposphere is

$$\Delta H_{TROP} = \Delta H_{TROP_{WET}} + \Delta H_{TROP_{DRY}} \quad (2.51)$$

The troposphere correction may be found in bytes 53-56 of the IDR.

## 2.4 SURFACE DYNAMIC CORRECTIONS

The solid earth tides are computed by linearly interpolating their values from the GDR's. The resultant interpolated value may be found in bytes 83-84 of the IDR.

## 2.5. ORBITAL CORRECTIONS

The NASA/GSFC PGS-S4 orbits which are used to improve the height measurements, have rms radial errors of 1.5 m. In an effort to reduce the radial error of these orbits, a technique was devised to further improve the orbit accuracy by referencing the orbits to a common ocean surface. Previous attempts to adjust the orbits using crossover minimization techniques with the ice sheet crossovers proved unsuccessful due to extreme segmentation of the data (see Figure 2). The new technique is not dependent upon the ice data but upon ocean altimetry, and utilizes the smoothed Seasat 84306 global ocean surface (Marsh et al., 1986). Through crossover minimization techniques the radial orbit error for the 84306 ocean surface has been reduced to 11 cm in the open ocean areas.

The method involves obtaining the residuals between the Seasat ocean data for passes which traverse Greenland, and the smoothed 84306 ocean surface. Using least-squares minimization, these residuals are then fit to a linear or quadratic function depending on the proximity of the data to Greenland. The function is, in turn, interpolated or extrapolated to determine the value of the orbit adjustment over Greenland which is to be subtracted from the surface height. This function is of the following form:

$$f(t) = C_0 + C_1 \Delta t + C_2 \Delta t^2 \quad (2.52)$$

where

$C_0, C_1, C_2$  are the coefficients of the fit where the units are meters, meters/fractions of a day and meters/(fractions of a day)<sup>2</sup>, respectively, and

$\Delta t$  is the time from the start of the pass in fractions of a day.

Since this method attempts to adjust for orbit error only, the ocean data which are used must have all sensor, atmospheric, and surface dynamic corrections applied. The ocean data used in the adjustment are obtained from the Seasat Geophysical Data Records (GDR's), as corrected by JPL (Lorell et al., 1980).

Since the orbit error is strongly periodic, with a dominant frequency of two cycles per one revolution, only data from the northern hemisphere need to be used in computing the orbit adjustment over Greenland.

The distribution of the data affects the way in which the residuals are fit. To aid in categorizing the distributions of data, the northern hemisphere is subdivided into five ocean regions: 1) the area to the east of Greenland and within 1000 km. of the coast; 2) the area to the east of Greenland from 1000 km. from the coast to the Greenwich meridian; 3) the Indian Ocean; 4) the area to the west of Greenland between Greenland and North America; and 5) the Pacific Ocean (see Figure 7). The type of fit performed depends upon particular regions containing a minimum amount of data. If the criteria are not met, then no fit is performed.

Figure 7 summarizes the type of fit which is performed depending upon the region(s) in which data are found. An 'X' in regions 1, 2, 3 or 5 represents a minimum of 10 points, while region 4, due to its limited open ocean area, requires a minimum of 19 points. Linear fits are performed when data are found either very close to Greenland or are widely separated from Greenland. Quadratic fits are performed when the data are more evenly distributed over several regions.

After the coefficients for the fit are initially determined, outlying data which satisfy the following criterion are removed:

$$|H(t)-f(t)| \geq m * RMS \quad (2.53)$$

where

$m$  is an integer editing multiplier,

$RMS$  is the rms between the residual heights and the function  $f(t)$ , and

$H(t)$  is the surface elevation of the datum point.

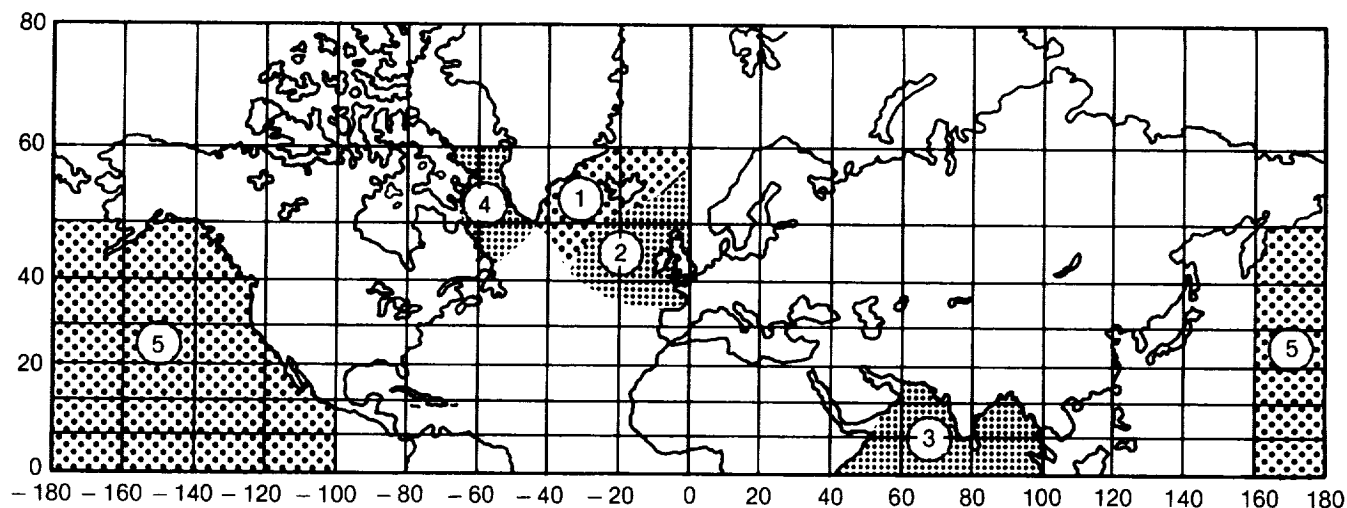


Figure 7. Orbit Adjustment Regions and Effects of Data Distribution on the Orbit Adjustment Fit

REGIONS (MINIMUM NUMBER OF POINTS)					TYPE OF FIT L = LINEAR Q = QUADRATIC
1 (10)	2 (10)	3 (10)	4 (19)	5 (10)	
X			X		L
X					L
			X		L
		X		X	L
	X			X	L
X				X	Q
	X	X		X	Q
		X	X		Q
	X		X		Q

'X' INDICATES A REGION CONTAINING THE MINIMUM NUMBER OF POINTS



The remaining data are then used to solve for the function. This process is repeated until either the latest computed rms does not change by more than .02 m from the previous iteration, or 15 iterations are completed. In the case of the Seasat Greenland data, an editing multiplier of 4.0 is used with an initial rms of 20.0 m.

After solving for the coefficients and removing outliers, the function must satisfy a final test. For a linear function, the orbit adjustments are computed at the endpoints of the pass. If the absolute value of the orbit adjustment at either endpoint exceeds 3.0 m, then the function is not used. In the case of a quadratic function, the extremum of the function is first located. If the extremum is outside the endpoints of the data just fit, then the endpoints of the pass are checked as in the linear case. If the extremum lies between the endpoints, its value is checked. Again, a 3.0 m adjustment is deemed too large and if exceeded, an attempt is made to refit the data with a linear function. Of the 331 GDR passes for which an orbit adjustment was computed, 181 resulted in quadratic fits and 150 in linear fits. Of the 194 quadratic fits initially attempted, 12 failed the extremum test and were refit using a linear function. Of these, only one failed the endpoint test.

Two examples of results from the orbit adjustment procedure are shown in Figures 8 and 9. In the first case (Figure 8), data which are found in close proximity to Greenland are fit by a linear function. The latitude and east longitude of the points along the pass closest to the west and east coasts of Greenland are indicated. A linear function is fit to the smoothed ocean surface residuals. The orbit adjustment in the region traversing Greenland is indicated by dashes. Figure 9 shows the orbit adjustment results when a quadratic fit is necessary due to data being available just off Greenland's east coast and in the Pacific Ocean. The final rms between the data and function are 27 cm in the linear case and 14 cm the quadratic case.

Table 3 summarizes the orbit adjustments computed for each GDR rev at 310, 320, and 330 East Longitudes, representing the west coast, central region, and east coast of Greenland. Also included are the coefficients for the function (Equation 2.52) and the elapsed time in fractions of a day from the start point of the pass used to compute the adjustment for the longitude in question.

Utilizing Equation (2.52), the orbit adjustment is then computed for each Seasat IDR, and subtracted from the surface height. The orbit adjustment and its corresponding rms are located in bytes 93-96 and 97-100, respectively, of the IDR.

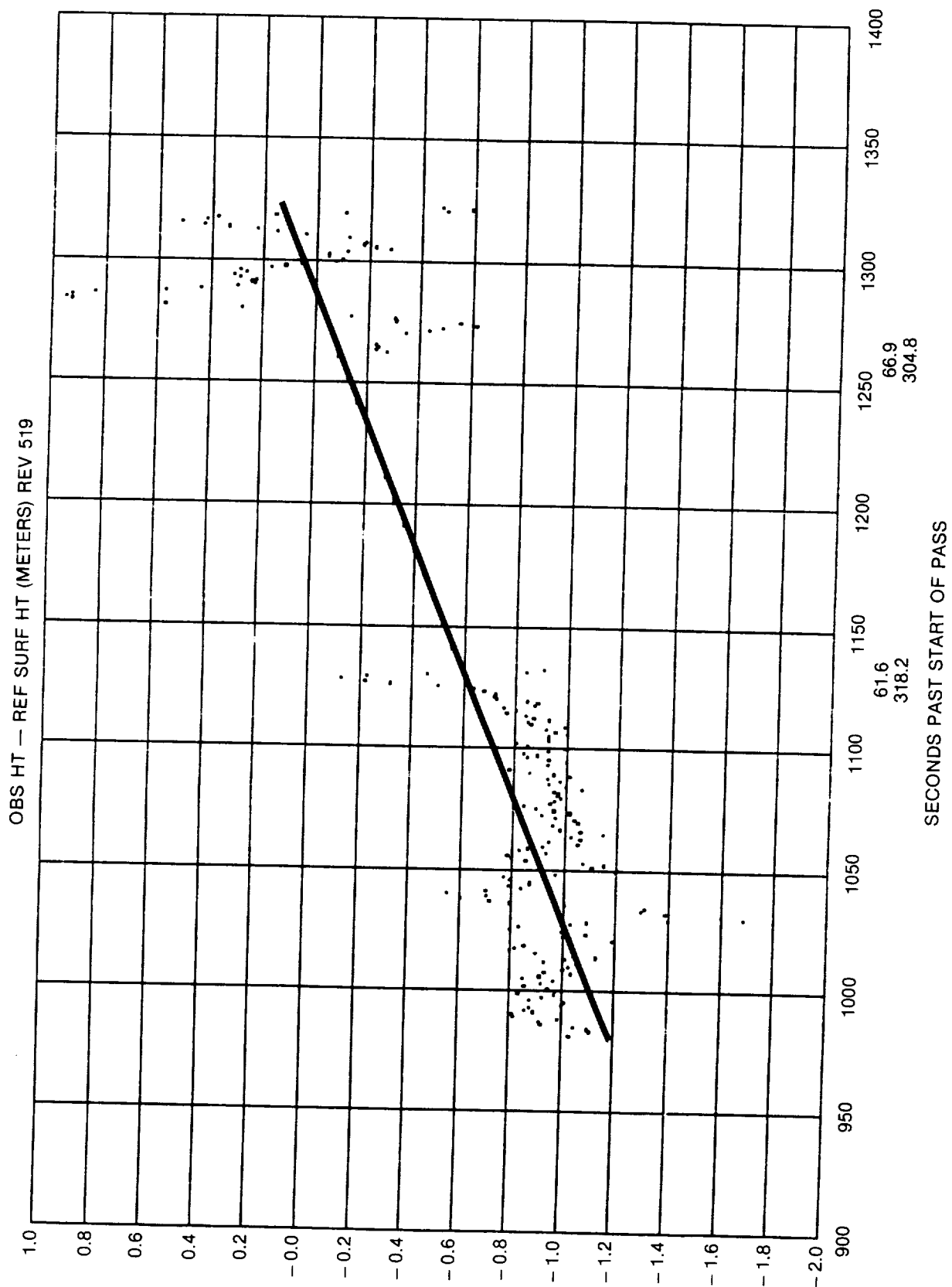


Figure 8. Orbit Adjustment Computed From Data in Close Proximity to Greenland's Coast

OBS HT — REF SURF HT (METERS) REV 158

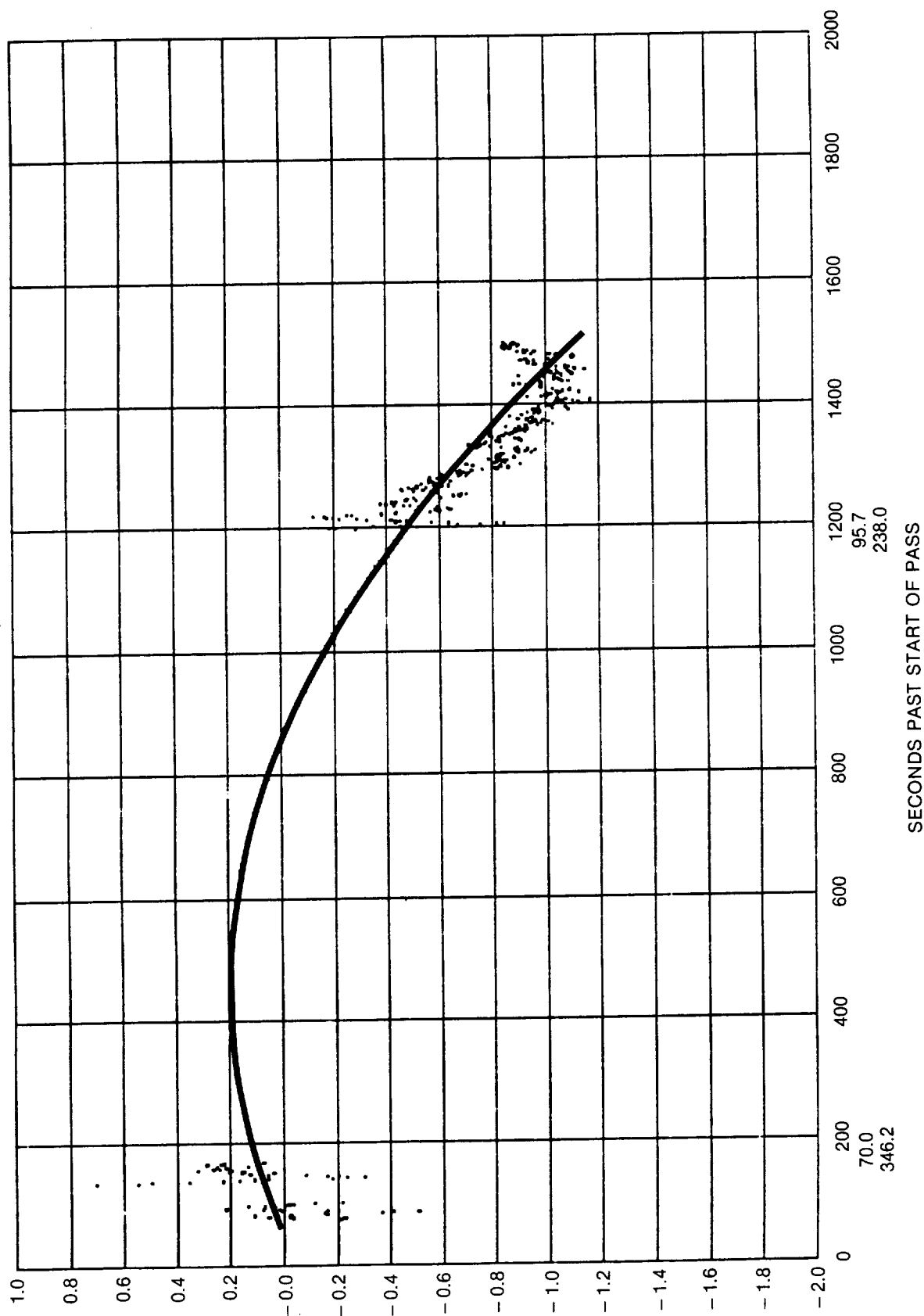


Figure 9. Orbit Adjustment Computed From Widely Distributed Data

Application of the orbit adjustment to the data yields improved crossover results. When the differences in heights are computed at 1235 crossover locations for ascending and descending passes over Greenland, the resultant crossover residual mean of the data without the orbit adjustment is 33 cm with an rms of 1.15 m. After application of the orbit adjustment, the data give a crossover residual mean of 7 cm and an rms of 0.99 m.

## 2.6 SLOPE CORRECTION

The altimeter height is measured to the closest point within its footprint, which does not correspond to the subsatellite location for sloping surfaces. This effect introduces an error into the height measurement which can be corrected by adjusting either the value of the measurement or its location (Brenner et al., 1983). Upon examination of both techniques, the method which was chosen for the Seasat data is to adjust the measurement. The magnitude of the slope-induced error may be represented by:

$$\Delta H_{\text{SLOPE}} = H(1 - \cos \alpha) \quad (2.54)$$

where

$H$  is the satellite altitude in meters

$\alpha$  is the maximum regional surface slope in radians

or

$$\Delta H_{\text{SLOPE}} = \frac{H\alpha^2}{2}, \text{ for small } \alpha. \quad (2.55)$$

The surface slope in Equation (2.55) for any one point is calculated using the following equation:

$$\alpha = \sqrt{\alpha_{\text{along-track}}^2 + \alpha_{\text{cross-track}}^2} \quad (2.56)$$

where

$\alpha_{\text{along-track}}$  is the slope of the surface in the along-track direction of the data, and

$\alpha_{\text{cross-track}}$  is the slope of the surface in the cross-track direction of the data, perpendicular to the along-track direction.

The cross-track slope is obtained by using a reference surface of Greenland, generated from the Seasat data. This surface consists of a two-dimensional grid of heights. The spacing between grid points is 20 km. Bilinear interpolation between these grid values is used to determine the heights at the points where the cross-track intersects the closest grid lines. From these heights, the cross-track slope is then determined.

The along-track slope is obtained using the available along-track data. Since the height profile is initially unknown, an iterative procedure is used to attempt a reconstruction of the true height profile. The initial along-track slope at a data point location is calculated by performing a linear fit to the five elevations of the along-track data points nearest the data point in question. A slope correction is then calculated for that point and each point in the pass using Equation (2.55), but applying only 25% of the correction to the elevations. This entire procedure is repeated using the revised elevations three more times, each time applying 25% of the current elevation correction. After the final iteration, the total along-track height correction and Equation (2.55) are used to calculate an "effective" along-track slope. This slope may then be used in Equation (2.56) along with the cross-track slope to calculate the total slope. In the case of both the along and cross-track slopes, a maximum of .8 degree is allowed. This is a limitation set by the physical characteristics of the altimeter.

If two points cannot be found on both sides of the point being adjusted, after having searched 10 km in both directions, then the reference grid which is used to calculate the cross-track slope is also used to determine the along-track slope in a manner equivalent to the cross-track slope calculation described above.

Slope corrections are not applied to the surface heights on the IDR's. However, the along-track and cross-track slopes, from which the slope correction may be computed, are stored in bytes 85-86 and 87-88, respectively. Bytes 89-90 contain the size of the window required to find the five points to perform the along-track linear fit. Bytes 91-92 give information pertaining to how the along-track and cross-track slopes were determined.

## 2.7 SUMMARY OF CORRECTIONS

In order to obtain a corrected surface elevation relative to sea level with the solid tide effects removed, the following algorithm is used.

$$\begin{aligned} H_{\text{COR}} = & H_{\text{SC}} - H_{\text{ALT}} - \Delta H_{\text{RET}} - \Delta H_{\text{CG}} + \Delta H_{\text{ION}} + \Delta H_{\text{TROP}} - \Delta H_{\text{TIDE}} \\ & - \Delta H_{\text{ORB}} - \Delta H_{\text{SLOPE}} - H_{\text{GEOID}} \end{aligned} \quad (2.57)$$

where

$H_{\text{SC}}$  is the height of the spacecraft above the ellipsoid,

$H_{\text{ALT}}$  is the original altimeter measurement,

$\Delta H_{\text{RET}}$  is the retracking correction,

$\Delta H_{\text{CG}}$  is the center of gravity correction,

$\Delta H_{\text{ION}}$  is the ionospheric correction,

$\Delta H_{\text{TROP}}$  is the tropospheric correction,

$\Delta H_{\text{TIDE}}$  is the value of solid tide,

$\Delta H_{\text{ORB}}$  is the orbit adjustment,

$\Delta H_{\text{SLOPE}}$  is the slope correction, and

$H_{\text{GEOID}}$  is the value of the geoid.

The surface elevation on the IDR is relative to the ellipsoid and is corrected for tropospheric and ionospheric effects, the center of gravity offset, the retracking correction, and the orbit adjustment when available. However, the elevation still contains solid tide effects, and the application of the slope correction or removal of the solid tides have been left to the discretion of the user. The surface elevation status word located in bytes 77-78 of the IDR should be checked to verify whether or not corrections have been applied.

Corrections which are applied to the altimeter measurement are done in the opposite sense from the surface elevation corrections and may be verified using the altimeter measurement status word in bytes 13-16 of the IDR.

An outline of the adjustments and corrections required to the Seasat data and their values or range of values is given in Table 4.





### SECTION 3.0 WAVEFORM DATA RECORDS

The averaged radar return pulses contained in the SDR's are stored on a separate file called the Waveform Data Records (WDRs) to facilitate their use. Table 5 outlines in detail the format of this record.

The time, geographical position, and altimeter measurement on the WDRs are not identical to the corresponding records on the IDRs. This is due to the fact that the WDRs information is obtained directly from the SDR's without the application of any correction or adjustment of any kind. The time differs by the time tag correction described in Section 2.2.1. Positions on the WDR are from the orbits on the SDR's and not PGS-S4 orbits. The altimeter measurement represents the raw observation on the SDR without any of the corrections described in Section 2.7 applied.



## SECTION 4.0

### GEO-REFERENCED DATA BASE

Ordering the Seasat data merely by time presents certain limitations when only data in a particular locale are desired. This situation arises when data are used to generate a grid of smoothed surface heights. To circumvent this problem, a data base was developed which orders the Seasat data by geographical areas or "bins". Figure 10 shows the configuration of the 4,300 bins in the vicinity of Greenland. Bin sizes vary in order to compensate for the higher data density near Seasat's maximum latitude. Each bin is assigned a number starting with "1" in the southwestern-most corner. Bin numbers increment first from west to east and then from south to north. The ending bin number for each row is indicated in the right-most margin of the map in Figure 10, while the number of data points is printed within the appropriate bin. Bins which contain no data have no number entered. Table 6 summarizes the number of points and the rev numbers found in each bin, along with the geographical coordinates of the southwestern-most corner of the bin. The bin number in which a particular data point is located may be found in bytes 153-156 of the IDR.

The geo-referenced data base is a subset of the IDR's, containing only information relating to the position, rev number, surface height, slope correction and orbit adjustment for each data point. Slope correction and orbit adjustment values are flagged with a -9999, if unavailable. In addition, the data are ordered first by bin number and then by time within each bin. The surface elevations on this data set have the orbit adjustment applied where it was available. If the orbit adjustment was not available, (indicated by the orbit adjustment value for that record being set to -9999) then the surface elevation contains the value calculated from the unadjusted orbit. The slope correction has not been applied to any of the surface elevations.

The data base is designed to be used on a direct-access device, so that data from one or several bins may be accessed without the need to read all the records prior to the location desired. This is achieved by dividing the data base into three sections.

The first section of the data base, a header, consists of one logical record and gives a summary of its configuration: the locations of the corners of the data base, the number of latitudinal rows, the width in degrees of each of these rows, and the number of longitudinal divisions in each row. These pieces of information give the layout of the data base, as depicted in Figure 10. Information pertaining to the size of the data base, the starting record of the bin directory, and the corrections applied to the data are also contained in this header.

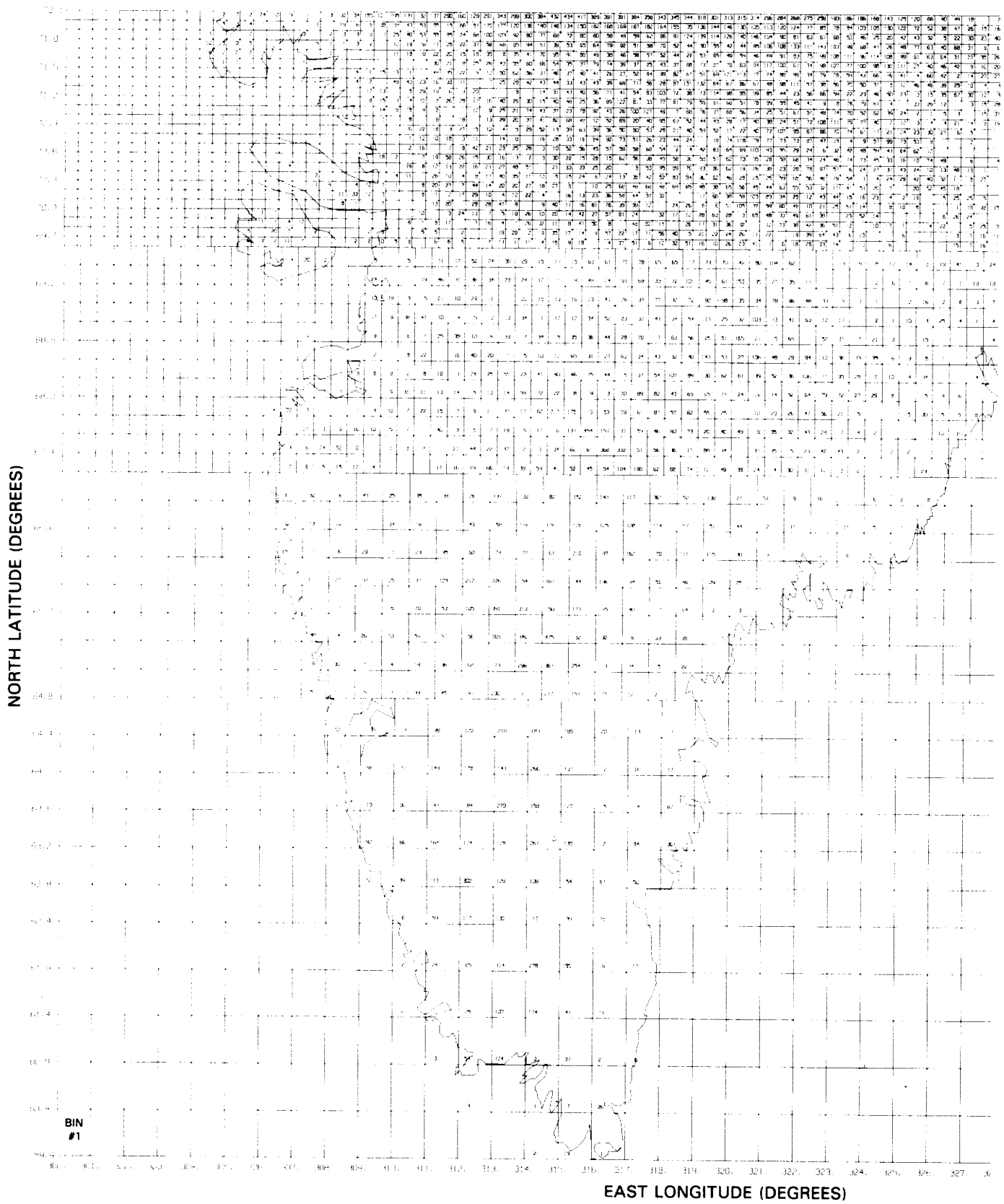
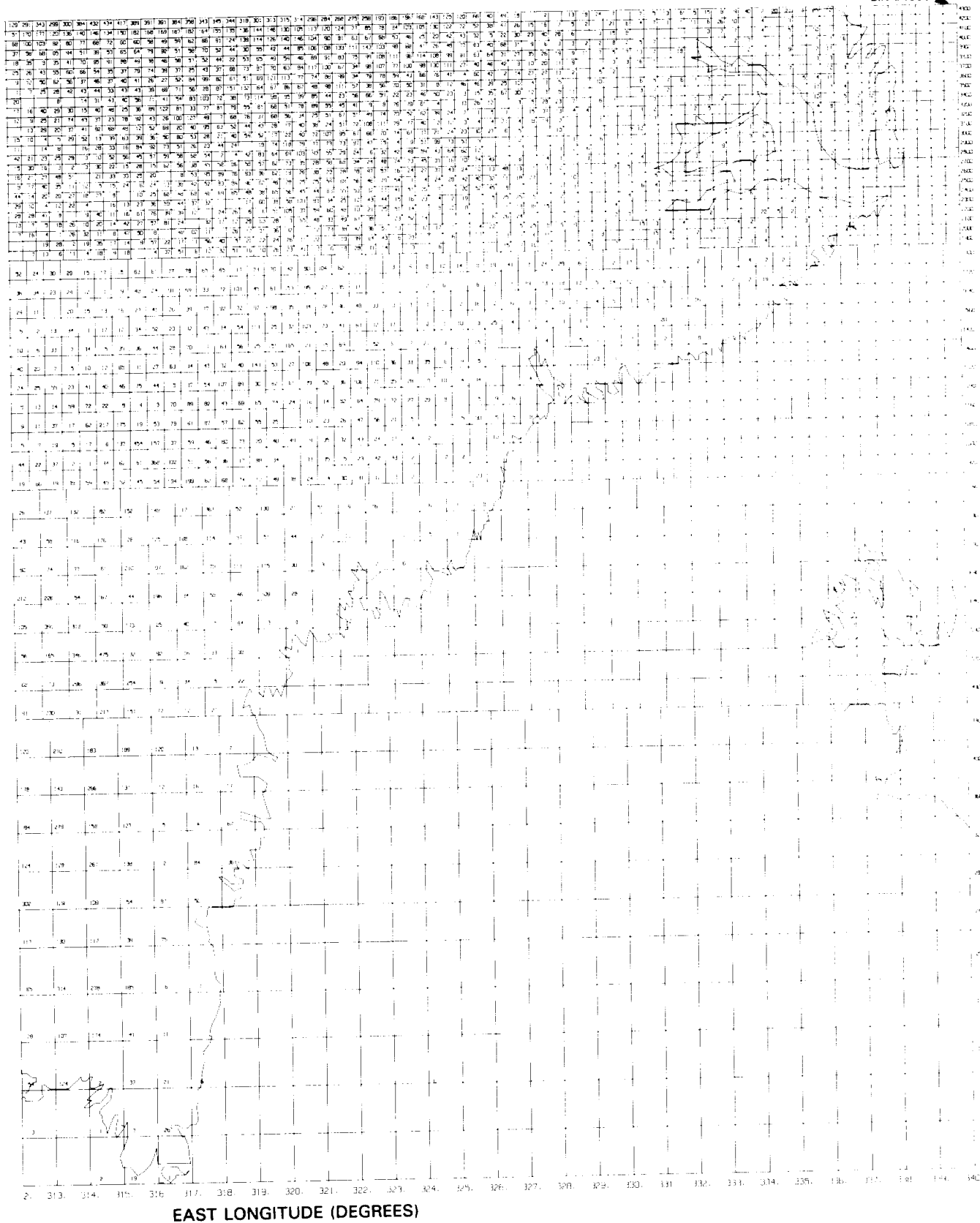


Figure 10. Seasat Greenland Geo-referenced Data Base Configuration



BIN NUMBER

EAST LONGITUDE (DEGREES)

Following the header are the altimetry data ordered by bin number and, within each bin, by time. The altimetry data are subdivided into two groups for each bin which contains data. The first subgroup consists of one logical record which indicates the number of data points contained in the bin. The second subgroup consists of the actual altimetry data (position, rev number, surface height, orbit adjustment and slope correction), with each record corresponding to a data point.

The final section is a bin directory which follows the altimetry data. The bin directory starts at the logical record indicated in the data base header. The directory contains an entry for each bin, and starting with the first bin, indicates the record number in the data base (not including the header record) at which the start of the data for a particular bin may be found. Bins which contain no data have a zero entered in the directory. Table 7 summarizes the structure of the data base in greater detail.

One use of the data base is to assist the gridding program (Section 5.0) in locating and accessing all data contained within a specified radius of a grid location. In addition, the data base may be used to locate data within any desired area. The following example demonstrates how this may be done. The limits of a desired area are used in conjunction with the header information to determine exactly which bin numbers contain the data. Using the southernmost latitude of the desired area, along with the width of the latitude rows, establishes the southernmost row which contains the data. Longitudinal limits of the desired area are then checked in conjunction with the size and location of the longitudinal divisions in that row. When the longitude limit of the desired area for that latitudinal group is exceeded, the process starts again with the next latitude row to the north. These steps are repeated until the northernmost boundary limit of the desired area is reached.

Equipped with the bin numbers which contain the data, the directory, which gives the logical record on the direct-access disk at which each bin begins, is read. If the directory value for the bin is non-zero, this logical record is then read to determine the number of records which follow and are contained in the same bin. The subsequent data is then read for each bin.

## SECTION 5.0

### GRIDS

The uneven distribution of Seasat data presents problems when attempting to create computer generated contours. An intermediate step is useful which fits the data to nodes of a regular grid. Data local to each grid point are fit with a biquadratic or bilinear surface to determine the surface height at the grid point. This procedure is referred to as gridding the data. Grids are generated using the corrected and adjusted data in the geographical data base.

#### 5.1 POLAR STEREOGRAPHIC PROJECTION

Grids of the Greenland data are generated in a tangent polar stereographic projection where the plane of projection is located at the geographic North Pole (the projection latitude) and is normal to the earth's axis. This projection is conformal which results in equality of scale about a point. Figure 11a depicts the concept behind this type of projection. A straight line is drawn from the South Pole (pole of projection), through a point on the earth's surface,  $Q$ , to the projection plane which is tangent to the North Pole. The projection plane is in turn divided into square grids from the pole to the Equator with the North Pole at the center. Three projection parameters define the size and the orientation of the plane and the grid size:

- $S$  - a conversion factor from half-inch grids at the projection latitude to the desired grid size;
- $\phi_p$  - the minimum latitude extent of the map perimeter for the projection latitude located at the North Pole; maximum latitude extent for the projection latitude located at the South Pole;
- $G$  - the Greenwich orientation in degrees

In the case of Greenland, where 20 kilometer grid cells were decided as being optimum for the data distribution, values of  $S=1.65$ ,  $\phi_p = 50^\circ$ , and  $G=45^\circ$  were chosen.

These three parameters are sufficient to define a grid of the northern hemisphere, from the North Pole to  $50^\circ$  north latitude where the number of cells of desired size from the pole to the equator may be represented by:





$$D = \frac{2R}{S \times 10^6} \quad (5.1)$$

where R is the radius of the earth measured in one half-inch grid cells and was chosen to be consistent with polar stereographic projections described in other documentation.

The integer number of grids of desired size from the pole to the map perimeter is:

$$N = D \times \tan \frac{90 - |\phi_p|}{2} \quad (5.2)$$

The grid, defined by I and J axes, with the origin in the upper left corner (see Figure 11b), represents the coordinate of the North Pole as:

$$\begin{aligned} I_p &= N + 1 \\ J_p &= N + 1 \end{aligned} \quad (5.3)$$

Any point with latitude  $\phi$  and longitude  $\lambda$ , which is located in the northern hemisphere north of  $\phi_p$  is positioned at the following I, J coordinate:

$$\begin{aligned} I &= \text{INT} [d \times A \times \cos(X) + I_p + 0.5] \\ J &= \text{INT} [d \times \sin(X) + J_p + 0.5] \end{aligned} \quad (5.4)$$

where

$$d \text{ is } D \times \tan \frac{90 - |\phi_p|}{2}$$

$$X \text{ is } \lambda + G$$

$$A \text{ is } +1 \text{ if } \phi_p \geq 0$$

$$A \text{ is } -1 \text{ if } \phi_p < 0$$

## 5.2 GRIDDING PROCEDURE

The surface height at each grid point location is calculated by fitting the surrounding data to the following biquadratic surface modeling function:

$$\begin{aligned}
 h_{ij}(\lambda, \phi) = & C_{1ij} + C_{2ij} \frac{(\lambda - \lambda_i)}{\text{capmin}} + C_{3ij} \frac{(\phi - \phi_j)}{(\text{capmin})(\cos \phi_j)} \\
 & + C_{4ij} \frac{(\lambda - \lambda_i)}{(\text{capmin})} \frac{(\phi - \phi_j)}{(\text{capmin})(\cos \phi_j)} + C_{5ij} \frac{(\lambda - \lambda_i)^2}{\text{capmin}^2} \\
 & + C_{6ij} \frac{(\phi - \phi_j)^2}{(\cos^2 \phi_j)(\text{capmin}^2)}
 \end{aligned} \tag{5.5}$$

where

$h_{ij}$  = value of the surface elevation function for the  $ij$  grid point as evaluated at the location  $(\lambda, \phi)$ ;

$C_{1ij} - C_{6ij}$  = numerically determined coefficients of the biquadratic function for grid point  $ij$ ; and

$\lambda_i \phi_j$  = longitude and latitude of the  $ij$  grid point in deg.

$\text{capmin}$  = minimum cap size in deg longitude.

A weighted least-squares method is used to solve for the coefficients  $C_{1ij} - C_{6ij}$  at each grid point  $ij$ . The weighting is invoked to prevent the obliteration of the local surface details by the smoothing process, and to lend greater importance to the data closest to the grid point location. The form of the weighting function is

$$W_{kij} = \frac{1}{\sigma_{ok}^2 D_{kij}^N} \tag{5.6}$$

where

$W_{kij}$  = weight of the  $k^{\text{th}}$  data point used in determining the coefficients of the surface function for the  $ij$  grid location;

$\sigma_{ok}$  = observation standard deviation of the  $k^{\text{th}}$  data point;

$N$  = power of inverse distance weighting; and

$D_{kij}$  = the distance from the  $k^{\text{th}}$  data point to location  $ij$ ,

where  $D_{kij} = \{[(\lambda_k - \lambda_i) \cos \phi_k]^2 + (\phi_k - \phi_j)^2\}^{1/2}$

The observation standard deviation was assigned a value of 1.0 m. The power of inverse distance weighting was assigned a value of 2.0 m. The formula used for the least-squares minimization in matrix notation is

$$P_{ij}^T W_{ij} P_{ij} C_{ij} = P_{ij}^T W_{ij} H_{ij} \quad (5.7)$$

or

$$C_{ij} = [P_{ij}^T W_{ij} P_{ij}]^{-1} P_{ij}^T W_{ij} H_{ij} \quad (5.8)$$

where

$$H_{ij} = \begin{bmatrix} h_1 \\ \vdots \\ h_k \\ \vdots \\ h_m \end{bmatrix}$$

is the observational data set used in determination of grid point ij;

$$P_{ij} = \begin{bmatrix} \frac{\partial h_1}{\partial C_{1ij}} & \frac{\partial h_1}{\partial C_{2ij}} & \dots & \frac{\partial h_1}{\partial C_{6ij}} \\ \vdots & & & \vdots \\ 2h_m & \dots & \dots & \frac{2h_m}{\partial C_{6ij}} \\ \frac{\partial h_m}{\partial C_{1ij}} & & & \frac{\partial h_m}{\partial C_{6ij}} \end{bmatrix}$$

is the matrix of observational partial derivatives;

$$C_{ij} = \begin{bmatrix} C_{1ij} \\ \vdots \\ C_{6ij} \end{bmatrix}$$

is the set of coefficients for grid point;

$$W_{ij} = \begin{bmatrix} w_{1ij} & & & 0 \\ & \ddots & & \\ & & \ddots & \\ 0 & & & w_{mij} \end{bmatrix}$$

is the observation weighting matrix.

A solution exists for Equation (5.8) if the determinant of the normal matrix  $B_{ij} = P_{ij}^T W_{ij} C_{ij}$  is positive. However, poor data distribution can cause ill-conditioned matrices yielding solutions that vary considerably from the expected results. One needs to be able to recognize when numerical problems occur to assure reasonable solutions. To this end the singular value decomposition (SVD) method is used to solve the matrix equation. The results of the SVD process give an indication of the stability of the equations and therefore whether a unique stable solution exists (Forsythe, Malcolm, and Moler, 1977). When the normal matrix  $B_{ij}$  is used as input to SVD, three output matrices are calculated:  $\Sigma$ ,  $U$ , and  $V$ .  $\Sigma$  is a diagonal matrix, such that

$$\Sigma = \begin{bmatrix} \sigma_1 & & & 0 \\ & \ddots & & \\ & & \ddots & \\ 0 & & & \sigma_6 \end{bmatrix}$$

where the  $\sigma$ 's are referred to as the singular values of  $B$ . The matrices  $U$  and  $V$  are used to transform the equations

$$Bc=y$$

into an equivalent diagonal set of equations

$$\Sigma \bar{c} = \bar{y}.$$

In principle, if none of the  $\sigma$ 's are zero the transformed equations could be solved using

$$\bar{c}_1 = \frac{\bar{y}_1}{\sigma_1}.$$

In practice, when any of the  $\sigma$ 's are small, numerical instability can result, giving unreasonable answers. The key to using SVD is to set a tolerance  $\tau$  which reflects the accuracy of the data and the arithmetic used. If any  $\sigma$ 's are less than  $\tau$  times the largest  $\sigma$  then those corresponding

$\bar{c}$ 's are not uniquely defined and unreasonable results can occur. When problems occur, steps must be taken to provide more information to evaluate the surface function.

Once  $\tau$  is chosen, then  $\Sigma$ , U, and V are used in the following manner to calculate each coefficient  $C_l$ .

$$S = \sum_{j=1}^m U(j,i) Y_j$$

for all j where  $\sigma_j > \tau$

$$C_l = \sum_{k=1}^n \frac{S}{\sigma_k} V(l,k) .$$

In this study the value of  $\tau$  used was .001 m. SVD is then used to determine when there are sufficient data to provide a unique solution to the surface modeling function. When a unique solution cannot be found more data are added and the function is reevaluated. At each grid location ij, data within the circular area defined by radius R from the grid location are used in the solution. Four different values for R are used: 33 km, 55 km, 88 km, and 132 km. Initially the smallest value of R is used and if a solution cannot be found then R is increased. If the biquadratic solution at the maximum value of R is unsatisfactory according to the SVD criterion, then the function (Equation 5.5) is reduced to a bilinear function by setting coefficients C4 through C6 to zero. If a valid solution still cannot be found, then the grid value is considered undefined and set to -1000.0.

Individual data point removal is also invoked during the gridding process. After finding a valid solution at location ij, the weighted rms of the residuals of the data with respect to the surface is calculated using

$$RMS_{WT_{ij}} = \frac{\sum_{k=1}^M \frac{Res_{kij}^2}{\sigma_{O_k}^2 D_{kij}^N}}{\sum_{k=1}^M \frac{1}{\sigma_{O_k}^2 D_{kij}^N}} \quad (5.9)$$

where

$$\text{Res}_{kij} = h_k - h_{kij}$$

$h_{kij}$  = height at location of measurement k evaluated using the surface function for grid location ij.

The following inequality is then evaluated for each data point used in the solution.

$$\frac{\text{Res}_{kij}}{\sigma_{o_k} D^N} < E_{\text{mult}} * \text{RMS}_{WT_{ij}} \quad (5.10)$$

A value of the editing multiplier ( $E_{\text{mult}}$ ) equal to 3.5 is used and all data points that do not satisfy the inequality are deleted. When any data points are deleted the surface function is reevaluated using the remaining data. A minimum of 10 data points are required to solve for the function.

The standard deviation associated with the grid height,  $\sigma_{Gij}$ , is then calculated to determine how well the grid represents the data.

$$\sigma_{Gij} = \text{RMS}_{WT_{ij}} * (V_{11ij})^{1/2}.$$

where

$$V_{ij} = B_{ij}^{-1} P_{ij} W_{ij} \begin{bmatrix} \sigma_{o1}^2 & & 0 \\ & \ddots & \\ 0 & & \sigma_{om}^2 \end{bmatrix} [B_{ij}^{-1} P_{ij}^T W_{ij}]$$

Grid points that have a large value of  $\sigma_G$  do not represent the data as well as those that have smaller  $\sigma_G$ 's.

The format of the grid record is described in Table 8. The location, coefficients,  $\sigma_G$ , number of points used and other pertinent parameters are output for each grid point location. The user can utilize these parameters to decide the accuracy of the individual grid values.

## TABLES





Table 1. Ice Data Record Description

General Characteristics:

Record Format - variable  
 Record Size (bytes) - 164 + 4 for IBM record control word  
 Blocksize (bytes) - 31920 + 4 for IBM block control word

The first seven records of the IDR data set are 80 bytes long and contain a brief description of the contents of the file. The remaining records follow the 164-byte format.

HEADER RECORDS

<u>Bytes</u>	FORTTRAN Variable <u>Type</u>	<u>Description</u>
1-80	A1	Brief description of file contents. (Comprises first seven records only)

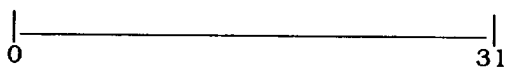
DATA RECORDS

<u>Bytes</u>	FORTTRAN Variable <u>Type</u>	<u>Description</u>
1-4	I*4	Satellite ID - This is the international satellite designation nnppppqq where:  nn - last two digits of the year of launch (e.g., 1974 74, 1969 69).  ppp - order of launch. Example: The 25th vehicle launch in a given year is designated with ppp = 025.  qq - component identifier (e.g., component a → 01, component l → 12, etc.).
5-6	I*2	Measurement type 40-44 Altimeter height 40 = Long pulse (GEOS data) 41 = Short pulse (GEOS data) 43 = Seasat altimetry

Table 1. Ice Data Record Description (Cont.)

<u>Bytes</u>	<u>FORTTRAN Variable Type</u>	<u>Description</u>																																
7-8	I*2	Time system indicator (nm)  <table><tr><th><u>n-value</u></th><th><u>Description</u></th></tr><tr><td>0</td><td>Ground received time</td></tr><tr><td>1</td><td>Satellite transponder/reflector time</td></tr><tr><td>2</td><td>Ground transmitted time</td></tr><tr><td colspan="2"><u>Altimeter data times</u></td></tr><tr><td>1</td><td>Transmitter time</td></tr><tr><td>2</td><td>Ground bounce time</td></tr><tr><td>3</td><td>Receiver time</td></tr><tr><th><u>m-value</u></th><th><u>Description</u></th></tr><tr><td>0</td><td>UT-0</td></tr><tr><td>1</td><td>UT-1</td></tr><tr><td>2</td><td>UT-2</td></tr><tr><td>3</td><td>UTC</td></tr><tr><td>4</td><td>A.1</td></tr><tr><td>5</td><td>A.3 (A.T. B.I.H.)</td></tr><tr><td>6</td><td>A-S (Smithsonian)</td></tr></table>	<u>n-value</u>	<u>Description</u>	0	Ground received time	1	Satellite transponder/reflector time	2	Ground transmitted time	<u>Altimeter data times</u>		1	Transmitter time	2	Ground bounce time	3	Receiver time	<u>m-value</u>	<u>Description</u>	0	UT-0	1	UT-1	2	UT-2	3	UTC	4	A.1	5	A.3 (A.T. B.I.H.)	6	A-S (Smithsonian)
<u>n-value</u>	<u>Description</u>																																	
0	Ground received time																																	
1	Satellite transponder/reflector time																																	
2	Ground transmitted time																																	
<u>Altimeter data times</u>																																		
1	Transmitter time																																	
2	Ground bounce time																																	
3	Receiver time																																	
<u>m-value</u>	<u>Description</u>																																	
0	UT-0																																	
1	UT-1																																	
2	UT-2																																	
3	UTC																																	
4	A.1																																	
5	A.3 (A.T. B.I.H.)																																	
6	A-S (Smithsonian)																																	
9-12	I*4	Station Number (0 indicates altimeter)																																
13-16	I*4	Altimeter measurement status word																																

The status word consists of bit switches packed into a single 32-bit word. The rightmost bit (bit 31) is of lowest order and the leftmost bit (bit 0) is of highest order.



The status bits are configured as follows:

<u>Bits</u>	<u>Value</u>	<u>Description</u>
0		Unused
1-2		Format indicator for measurement types 40-41
	1	20 obs/frame
	2	32 obs/frame
	3	320 obs/frame

Table 1. Ice Data Record Description (Cont.)

<u>Bytes</u>	<u>FORTTRAN Variable Type</u>	<u>Description</u>
(13-16 Cont.)		
	<u>Bits</u>	<u>Value</u>
		<u>Description</u>
	3	Net instrument corrections indicator
		0 Instrument corrections applied to observation
		1 Instrument corrections not applied
	4	Unused
	5-6	Speed of light indicator
		0 $2.997925 \times 10^8$ meters/sec
		3 $2.99792458 \times 10^8$ meters/sec
	7	Unused
	8	Solid tide indicator
		0 Solid tide not on data record
		1 Solid tide on data record
	9	Ocean tide indicator
		0 Ocean tides not included in total tides
		1 Ocean tides included in total tides
	10-11	Tropospheric correction indicator
		0 Total tropospheric correction not on data record
		1 Total tropospheric correction on data record
	12	Ionospheric correction indicator
		0 Ionospheric correction not on data record
		1 Ionospheric correction on data record
	13	Atmospheric corrections indicator
		0 Ionospheric and tropospheric corrections applied to observation if found on data record
		1 Ionospheric and tropospheric corrections not applied to observation if found on data record

Table 1. Ice Data Record Description (Cont.)

<u>Bytes</u>	<u>FORTTRAN Variable Type</u>	<u>Description</u>																																																																								
(13-16 Cont.)		<table> <tr> <th><u>Bits</u></th><th><u>Value</u></th><th><u>Description</u></th></tr> <tr> <td>14</td><td></td><td>Total tide indicator</td></tr> <tr> <td></td><td>0</td><td>Solid and ocean tides removed from observation if found on data record</td></tr> <tr> <td></td><td>1</td><td>Observation includes solid and ocean tides</td></tr> <tr> <td>15</td><td></td><td>Center of gravity indicator</td></tr> <tr> <td></td><td>0</td><td>Center of gravity correction applied to observation</td></tr> <tr> <td></td><td>1</td><td>Center of gravity correction not applied to observation</td></tr> <tr> <td>16-20</td><td></td><td>Unused</td></tr> <tr> <td>21</td><td></td><td>Altimeter mode (GEOS only)</td></tr> <tr> <td></td><td>0</td><td>Global track mode</td></tr> <tr> <td></td><td>1</td><td>Intensive track mode</td></tr> <tr> <td>22-27</td><td></td><td>Unused</td></tr> <tr> <td>28</td><td></td><td>Location indicator</td></tr> <tr> <td></td><td>0</td><td>Over water</td></tr> <tr> <td></td><td>1</td><td>Over land</td></tr> <tr> <td>29</td><td></td><td>Orbit adjustment indicator</td></tr> <tr> <td></td><td>0</td><td>Orbit adjustment has been applied to observation</td></tr> <tr> <td></td><td>1</td><td>Orbit adjustment has not been applied to observation</td></tr> <tr> <td>30</td><td></td><td>Slope correction indicator</td></tr> <tr> <td></td><td>0</td><td>Slope correction has been applied to observation</td></tr> <tr> <td></td><td>1</td><td>Slope correction has not been applied to observation</td></tr> <tr> <td>31</td><td></td><td>Retracking correction indicator</td></tr> <tr> <td></td><td>0</td><td>Retracking correction has been applied to observation</td></tr> <tr> <td></td><td>1</td><td>Retracking correction has not been applied to observation</td></tr> </table>	<u>Bits</u>	<u>Value</u>	<u>Description</u>	14		Total tide indicator		0	Solid and ocean tides removed from observation if found on data record		1	Observation includes solid and ocean tides	15		Center of gravity indicator		0	Center of gravity correction applied to observation		1	Center of gravity correction not applied to observation	16-20		Unused	21		Altimeter mode (GEOS only)		0	Global track mode		1	Intensive track mode	22-27		Unused	28		Location indicator		0	Over water		1	Over land	29		Orbit adjustment indicator		0	Orbit adjustment has been applied to observation		1	Orbit adjustment has not been applied to observation	30		Slope correction indicator		0	Slope correction has been applied to observation		1	Slope correction has not been applied to observation	31		Retracking correction indicator		0	Retracking correction has been applied to observation		1	Retracking correction has not been applied to observation
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Table 1. Ice Data Record Description (Cont.)

<u>Bytes</u>	<u>FORTTRAN Variable Type</u>	<u>Description</u>
17-20	I*4	Modified Julian Date (MJD) of observation Julian Date = MJD + 2400000.5
21-28	R*8	Fraction of day past midnight (GMT)
29-36	R*8	Altimeter range measurement in meters
37-40	R*4	Satellite latitude in degrees
41-44	R*4	Satellite east longitude in degrees
45-48	R*4	Measurement standard deviation in meters
49-52	R*4	Center of gravity correction in meters
53-56	R*4	Tropospheric refraction correction in meters
57-60	R*4	Ionospheric refraction correction in meters
61-64	R*4	GEM10-B geoid height above reference ellipsoid in meters
65-68	R*4	Total tide height above reference ellipsoid in cm.
69-72	I*4	Rev number
73-76	I*4	Surface height with respect to ellipsoid in cm.
77-78	I*2	Surface height status word

$\begin{array}{|c|} \hline 0 \text{-----} 15 \\ \hline \end{array}$

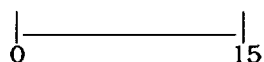
<u>Bits</u>	<u>Value</u>	<u>Description</u>
0-8	0	Unused
9	1 0	Slope correction applied Slope correction not applied
10	1 0	Orbit adjustment applied Orbit adjustment not applied
11	1 0	Solid tides removed Solid tides not removed
12	1 0	Retracking correction applied Retracking correction not applied
13	1 0	Center of gravity bias applied Center of gravity bias not applied

Table 1. Ice Data Record Description (Cont.)

<u>Bytes</u> (77-78 Cont.)	<u>FORTTRAN</u> <u>Variable</u> <u>Type</u>	<u>Bits</u>	<u>Value</u>	<u>Description</u>
		14	1 0	Tropospheric correction applied Tropospheric correction not applied
		15	1 0	Ionospheric correction applied Ionospheric correction not applied
79-80	I*2	Significant wave height (H 1/3) in cm.		
81-82	I*2	Automatic Gain Control (AGC) in dB		
83-84	I*2	Solid tides in cm.		
85-86	I*2	Tangent of along-track slope (x 10 <sup>5</sup> )		
87-88	I*2	Tangent of cross-track slope (x 10 <sup>5</sup> )		
89-90	I*2	Size of window used in obtaining along-track slope in meters		
91-92	I*2	Along-track and cross-track slope correction word. If all bits are zero, then slopes for slope correction were not able to be computed.		
<div style="display: flex; align-items: center; margin-bottom: 10px;"><div style="border-left: 1px solid black; width: 100%; height: 15px; position: relative;"><div style="position: absolute; left: 0; bottom: 0; right: 0; height: 10px;"></div></div><div style="margin-left: 10px;"><div style="border-left: 1px solid black; width: 10px; height: 15px; position: relative;"><div style="position: absolute; left: 0; bottom: 0; right: 0; height: 10px;"></div></div></div></div> <div style="display: flex; justify-content: space-between; width: 100%;"><span>0</span><span>15</span></div>				
<u>Bits</u>	<u>Value</u>	<u>Description</u>		
0-9		Unused		
10	1	Along-track slope set to the maximum value of .8 degree during iterative procedure.		
11	1	Cross-track slope set to the maximum value of .8 degree.		
12	1	Along-track slope set to .8 degree after final iteration.		
13	1	Window was extended to 20 km with no point found; reference grid used to calculate along-track slope.		
14	1	Window had to be extended in both directions to determine along-track slope, but it is less than 20 km.		
15	1	Two adjacent points were found and used to determine along-track slope.		
93-96	R*4	Orbit adjustment to 84,306 ocean surface in meters		
97-100	R*4	RMS of orbit adjustment fit in meters		

Table 1. Ice Data Record Description (Cont.)

<u>Bytes</u>	<u>FORTTRAN Variable Type</u>	
101-104	R*4	RMS of filtered fit in counts
105-108	R*4	Timing bias in seconds
109-144	R*4	Retracking parameters $\beta(1) - \beta(9)$
145-148	R*4	Attitude information from SDR
149-152	R*4	Correction to surface height if using leading edge of leading edge in meters
153-156	I*4	Geographical data base bin number
157-158	I*2	Standard deviation of 1st leading edge position in gates
159-160	I*2	Standard deviation of 2nd leading edge position in gates
161-162	I*2	Retracking status word



<u>Bits</u>	<u>Value</u>	<u>Description</u>
0		Unused
1	0	Gains and offsets were not applied to waveform counts in plots and in determining $\beta$ parameters
	1	Gains and offsets were applied to waveform counts in plots and in determining $\beta$ parameters
2	0	Specular test not performed or waveform not specularly shaped
	1	Waveform determined to be specularly shaped
3	0	Status flag from SDR less than or equal to one
	1	Status flag from SDR greater than one
4	0	Waveform not specularly retracked
	1	Waveform specularly retracked
5	0	Gains and offsets not applied to waveform count values on WDR's
	1	Gains and offsets applied to waveform count values on WDR's

Table 1. Ice Data Record Description (Cont.)

<u>Bytes</u>	<u>FORTTRAN Variable Type</u>	<u>Description</u>		
(161-162 Cont.)		<u>Bits</u>	<u>Value</u>	<u>Description</u>
		6	0	For double waveforms the retracking correction is not calculated from a weighted average of the two leading edges.
			1	For double waveforms the retracking correction is calculated from a weighted average of the two leading edges.
		7	0	No problem with leading edge definition of waveform
			1	Waveform not defined well enough to filter, no leading edges or too many leading edges
		8	0	No problem retracking
			1	Problem retracking
		9	0	Timing bias was not applied to time tag
			1	Timing bias applied to time tag
		10	0	Waveform not retracked
			1	Waveform retracked
		11	0	Whole edge retracked
			1	Leading edge retracked
	applies to water data	12	0	Ht correction not applied due to h
			1	Ht correction applied due to h
		13	0	Attitude seastate correction not applied to h
			1	Attitude seastate correction applied to h
		14-15	0	Tracking mode 1
			1	Tracking mode 2
			2	Tracking mode 3
			3	Tracking mode 4
163-164	I*2	Version number of retracking program that converted the data from SDR to IDR format		
		$n_1 n_2 n_3 n_4 n_5$		
		$n_1 n_2$ = year of version		
		$n_3 n_4$ = month of version		
		$n_5$ = point no. of version		



Table 2. Seasat IDR Greenland Catalog

REV NUMBER	APPROXIMATE LATITUDE AND DIRECTION AT 315.0 E LONG A = ASCENDING D = DESCENDING	STARTING LAT & LONG DEG N DEG E	ENDING LAT & LONG DEG N DEG E	NUMBER OF PTS	BINS THROUGH WHICH REV TRAVERSES				
792	59.56 A	61.039	312.420	6	93	92	171	211	
591	60.07 A	61.334	312.627	26	93	133	171	211	
835	60.74 A	60.759	314.881	19	55	173	172	212	
634	60.92 A	61.109	314.481	49	95	173	212	290	
146	61.04 A	60.894	315.238	81	56	96	134	174	252
878	61.38 A	61.149	315.428	159	369	135	174	213	252
1437	61.58 A	61.131	315.859	99	369	135	175	253	291
1394	61.58 A	60.738	316.552	162	96	135	136	253	331
1351	61.58 A	60.754	316.523	102	57	370	409	174	370
1308	61.58 A	60.726	316.576	130	330	96	136	214	252
1265	61.58 A	60.909	316.260	123	370	97	174	213	252
1222	61.58 A	61.490	315.209	129	292	136	174	213	252
1179	61.58 A	61.572	315.059	164	409	136	214	253	291
677	61.72 A	61.449	315.305	71	136	135	175	253	331
189	61.83 A	61.250	316.033	100	97	96	136	214	253
720	62.43 A	61.729	316.316	214	331	371	409	254	292
476	62.51 A	61.567	316.698	59	137	176	215	294	333
232	62.56 A	61.706	316.621	172	411	176	215	294	333
519	63.21 A	62.157	317.010	180	137	176	215	294	333
275	63.25 A	62.102	317.299	207	332	372	411	254	293
763	63.31 A	62.294	317.040	307	178	372	411	254	293
562	63.86 A	63.352	315.969	428	454	372	411	254	293
806	64.20 A	63.779	315.911	408	454	372	411	254	293
605	64.46 A	63.778	316.457	321	454	372	411	254	293
849	64.96 A	64.133	316.968	309	454	372	411	254	293
648	65.04 A	63.899	317.624	403	454	372	411	254	293
160	65.12 A	64.524	316.488	330	454	372	411	254	293
1021	65.28 A	64.589	316.824	230	454	372	411	254	293

Table 2. Seasat IDR Greenland Catalog (Cont.)

REV NUMBER	APPROXIMATE LATITUDE AND DIRECTION AT 315.0 E LONG A = ASCENDING D = DESCENDING	STARTING LAT & LONG		ENDING LAT & LONG		NUMBER OF PTS	BINS THROUGH WHICH REV TRAVERSES									
		DEG N	DEG E	DEG N	DEG E		418	417	510	509	559	558	608			
1494	65.30 A	63.966	318.426	67.806	307.023	293	339 607 418 657 656	379 657 417 656	418 802 510	510 937 559	559 1095 558	558 608 607	608			
1365	65.31 A	64.428	317.304	66.108	312.752	239	657 418 378 657 1095	656 417 461 656 1093	417 461 706 705	509 937 559	558 1094 558 858	608 1094 608 936	607			
1322	65.31 A	64.443	317.268	67.913	306.593	54	418 378 657 1095	417 461 656 1093	417 461 706 705	509 937 559	558 1094 558 858	608 1094 608 936	607			
1279	65.31 A	64.156	317.968	67.950	306.455	342	657 418 378 657 1095	656 417 461 656 1093	417 461 706 705	509 937 559	558 1094 558 858	608 1094 608 936	607			
1236	65.31 A	63.924	318.521	67.415	308.475	314	339 607 418 657 656	379 657 417 656	418 802 510	510 937 559	559 1095 558	558 608 607	608			
1193	65.31 A	64.839	316.285	67.130	309.482	334	656 418 378 657 1095	656 417 461 656 1093	417 461 706 705	509 937 559	558 1094 558 858	608 1094 608 936	607			
1150	65.31 A	64.137	318.026	67.877	306.749	325	607 418 378 657 1095	657 417 461 656 1093	417 461 706 705	509 937 559	558 1094 558 858	608 1094 608 936	607			
691	65.57 A	64.197	318.365	66.927	310.655	195	379 607 418 657 656	378 607 417 656	417 461 706 705	509 937 559	558 1094 558 858	608 1094 608 936	607			
490	66.11 A	65.153	317.558	68.035	308.209	218	512 756 514 808 514	562 806 564 807 564	561 863 563 866 563	609 1098 661 944 661	659 658 1177 1177 1177	708 708 708 708 708	757			
289	66.62 A	65.394	318.532	68.103	309.560	357	514 808 514	564 807 564	563 866 563	661 944 661	710 709 711	759 759 710	758			
777	66.71 A	65.273	319.184	68.765	307.033	388	514 808 514	564 807 564	563 866 563	661 944 661	710 709 711	759 759 710	758			
576	67.02 A	65.798	318.666	68.257	310.201	310	1102 614 808 514	1181 663 868 514	1259 712 947 661	1416 761 946 761	1415 1026 1026 1026	810 810 810 810	809			
820	67.31 A	65.930	319.381	68.278	311.211	130	1103 615 808 514	1183 614 807 514	1261 761 947 661	1261 761 946 761	810 810 810 810	870 870 870 870	950			
619	67.44 A	66.173	319.004	68.769	309.407	293	664 870 1342	714 950 1421	713 1029 1419	763 1027 1419	811 1106 1419	810 810 810	871			
662	67.83 A	66.462	319.559	69.844	305.255	383	715 952 1266 1914	764 1031 1422 2014	813 1030 1501 1419	875 1188 1579 1419	874 1187 1735 1419	873 1187 1734 1419	953			
418	67.86 A	66.138	320.720	69.179	309.041	313	666 954 1188 1579	716 953 1187 1579	764 1032 1266 1419	813 1111 1345 1419	812 1109 1735 1419	875 1109 1734 1419	874			
174	67.88 A	66.471	319.893	69.756	306.135	386	715 1032 1346 618	764 1031 1345 812	813 1111 1422 1111	875 1189 1579 1189	874 1268 1735 1345	954 1267 1916 1033	953			
1035	67.88 A	65.752	322.115	69.118	309.620	213	618 1111 1502	812 1110 1580	875 1188 1580	954 1345 1580	953 1735 1580	1032 1033 1033	1032			
1465	67.89 A	66.637	319.493	69.824	305.889	210	765 1032 666	764 1031 716	813 1111 765	875 1189 875	874 1268 874	954 1267 1916	953			
1422	67.89 A	66.298	320.552	67.962	314.775	199	1033 666 716	1032 716 1032	1111 765 813	1817 875 875	954 874 954	953 1423 1033	1033			

Table 2. Seasat IDR Greenland Catalog (Cont.)

REV NUMBER	APPROXIMATE LATITUDE AND DIRECTION AT 315.0° E LONG A = ASCENDING D = DESCENDING	STARTING LAT & LONG		ENDING LAT & LONG		NUMBER OF PTS	BINS THROUGH WHICH REV TRAVERSES											
		DEG N	DEG E	DEG N	DEG E		716	715	765	764	814	813	876	875	874			
1379	67.89 A	66.303	320.531	69.921	305.291	290	716 954 1817 2015	715 953 2114 2015	765 1033 2114 875	764 1032 1031	814 1031 1111	813 1111 1110	876 1110 1110	875 1735 1818				
1336	67.89 A	66.571	319.694	69.857	305.678	174	715 764 1817 2015	764 875 1817 813	874 1917 875	954 1916 2016	953 2016 954	1033 2015 953	1032 1032 1033	1031				
1293	67.89 A	66.630	319.510	67.968	314.754	207	765 1031 1110 1110	813 1031 1110 715	876 875 1110 765	874 875 1110	954 954 1110	953 954 874	1033 1033 953	1032				
1250	67.89 A	66.467	320.033	68.876	310.856	286	716 1033 1346 1425	715 1032 1425 813	765 1031 1502 876	813 1111 1110	876 1110 1189	875 1189 1188	874 1188 1032	953 1267 1268				
1207	67.89 A	66.610	319.585	69.156	309.501	148	765 1189 666 715	813 1188 715 1031	876 1268 765 1111	953 1346 874 1188	1033 1424 874 1659	1032 1423 954 1735	1032 1423 954 1916	1110				
1164	67.89 A	66.286	320.600	69.797	306.043	298	1032 1345 1424 1502	1031 1424 1423 1502	1111 1423 1423 1502	1188 1580 1659 1735	1267 1659 1735 1916	1266 1735 1034 1269	1266 1735 1034 1269	1346				
461	68.22 A	67.038	319.283	69.852	306.813	294	815 1113 1426 1659	878 1112 1192 1919	877 1192 1919 958	956 1191 2018 1038	955 1190 1116	1035 1270 1115	1034 1269 1188	1114 1348 1194 1663				
504	68.56 A	67.116	320.465	69.756	308.832	217	816 1193 1824 1823	959 1272 1823 1923	958 1352 1923 881	1038 1351 1589 880	1116 1508 1667	1115 1585 1666	1195 1584 1745	1194				
260	68.59 A	66.962	321.170	69.710	309.271	430	817 1116 1350 1429	816 1115 1195 1428	881 1195 1589 1508	960 1194 1274 1507	959 1038 1273 1586	1038 1037 1352 1585	1037 1037 1351 1664	1117 1351 1663				
547	68.88 A	66.575	323.708	69.651	310.884	403	720 1198 1432 1743	818 1197 1431 1828	883 1196 1510 884	882 1276 1589 964	962 1274 1667	1040 1039 1354 1666	1119 1353 1745	1118				
791	69.01 A	66.728	323.910	70.440	306.589	340	710 1277 1510 1928	885 1276 1590 1927	884 1356 1589 2027	964 1355 1668 2322	1041 1433 1746 2321	1120 1512 1830 2420	1198 1511 1829 2519	1278				
590	69.18 A	66.663	324.872	70.198	309.000	404	772 1200 1434 2029	819 1199 1514 2323	887 1279 1513 2327	886 1278 1591 2324	964 1357 1669	1044 1356 1748	1043 1436 1832	1201 1435 1930				
834	69.40 A	67.415	323.523	70.105	310.825	322	968 1360 1593 2130	967 1359 1592 2228	1046 1358 1672 2328	1045 1638 1750	1124 1516 1748	1203 1516 1835	1281 1514 2031	1280				
633	69.46 A	67.486	323.492	70.196	310.456	330	967 1439 1672 2131	1047 1438 1671 2229	1046 1437 1750 2327	1045 1517 1836	1124 1515 1934	1281 1595 1933	1359 1673 2032	1359				
877	69.62 A	67.126	325.822	70.388	310.200	233	823 1440 1673 2329	1048 1439 1752 2429	1127 1519 1837 2526	1204 1596 1936	1205 1934 2034	1283 2033 2232	1362 1674 2231	1362				

Table 2. Seasat IDR Greenland Catalog (Cont.)

REV NUMBER	APPROXIMATE LATITUDE AND DIRECTION AT 315.0 E LONG A = ASCENDING D = DESCENDING	STARTING LAT & LONG DEG N DEG E		ENDING LAT & LONG DEG N DEG E		NUMBER OF PTS	BINS THROUGH WHICH REV TRAVERSES											
		DEG N	DEG E	DEG N	DEG E		892	1049	1127	1206	1285	1284	1675	1674	1754	1753	1752	1751
1264	69.68 A	67.216	325.925	70.600	309.083	172	1753	1752	1839	1838	1937	1936	2035	2034	2134	2133	2132	2131
1221	69.68 A	67.233	325.869	70.582	309.222	269	2331	2429	2529	2528	2626	2625	2724	2723	2823	2822	2821	2820
							892	970	1048	1206	1285	1284	1384	1383	1484	1483	1482	1481
							1441	1440	1520	1519	1518	1517	1516	1515	1514	1513	1512	1511
676	69.72 A	67.995	322.998	70.340	310.924	449	1754	1753	1839	1837	1937	1936	2035	2034	2134	2133	2132	2131
							2724	2723	2823	2822	2922	2921	3021	3020	3120	3119	3118	3117
432	69.74 A	67.260	325.913	70.637	308.907	437	1126	1206	1205	1284	1383	1382	1481	1480	1580	1579	1578	1577
							1520	1519	1518	1598	1697	1696	1795	1794	1894	1893	1892	1891
							2134	2233	2331	2330	2429	2428	2528	2527	2627	2626	2625	2624
							892	1128	1207	1206	1285	1284	1384	1383	1484	1483	1482	1481
							1441	1440	1520	1519	1518	1517	1516	1515	1514	1513	1512	1511
719	69.96 A	68.113	324.057	70.608	310.514	532	1675	1674	1754	1753	1852	1851	1951	1950	2051	2050	2049	2048
							2036	2135	2234	2233	2332	2331	2431	2430	2531	2530	2529	2528
							2528	2627	2626	2725	2824	2823	2923	2922	3023	3022	3021	3020
							1209	1208	1287	1386	1485	1484	1584	1583	1684	1683	1682	1681
							1521	1601	1600	1699	1798	1797	1897	1896	1997	1996	1995	1994
							1755	1843	1842	1941	1940	2040	2039	2138	2137	2136	2135	2134
							2137	2237	2236	2335	2434	2433	2534	2533	2634	2633	2632	2631
							2728	2727	2827	2926	3025	3124	3224	3223	3324	3323	3322	3321
475	69.99 A	68.116	324.121	70.586	310.746	335	1209	1208	1288	1387	1486	1485	1585	1584	1685	1684	1683	1682
							1522	1600	1599	1698	1797	1796	1896	1895	1996	1995	1994	1993
							1842	1942	1941	2040	2039	2138	2137	2237	2236	2336	2335	2334
							2335	2434	2433	2532	2631	2630	2729	2728	2828	2827	2826	2825
231	70.00 A	67.650	326.124	70.598	310.836	560	1033	1131	1209	1288	1387	1386	1486	1485	1586	1585	1584	1583
							1444	1443	1523	1622	1721	1720	1821	1820	1921	1920	1919	1918
							1678	1677	1757	1756	1856	1855	1956	1955	2056	2055	2054	2053
							2040	2238	2237	2336	2435	2434	2535	2534	2635	2634	2633	2632
518	70.21 A	67.880	326.512	70.854	310.046	529	2532	2631	2630	2729	2828	2827	2928	2927	3028	3027	3026	3025
							1134	1133	1290	1289	1388	1387	1487	1486	1587	1586	1585	1584
							1604	1603	1602	1682	1781	1780	1881	1880	1981	1980	1979	1978
							1846	1945	1944	2044	2043	2143	2142	2242	2241	2341	2340	2339
							2240	2339	2338	2437	2536	2535	2636	2635	2736	2735	2734	2733
274	70.23 A	67.850	326.804	70.870	310.086	482	2833	2931	2829	2928	3027	3026	3126	3125	3226	3225	3224	3223
							1134	1290	1370	1369	1468	1467	1568	1567	1668	1667	1666	1665
							1602	1682	1681	1780	1779	1880	1879	1980	1979	2080	2079	2078
							1945	2044	2043	2143	2142	2242	2241	2341	2340	2441	2440	2439
							2339	2338	2437	2536	2635	2634	2735	2734	2835	2834	2833	2832
762	70.25 A	68.057	326.103	70.607	312.344	328	2731	2831	2829	2928	3027	3026	3126	3125	3226	3225	3224	3223
							1213	1369	1447	1525	1604	1603	1703	1702	1803	1802	1801	1800
							1681	1680	1760	1759	1858	1857	1958	1957	2058	2057	2056	2055
							2045	2044	2043	2143	2142	2242	2241	2341	2340	2441	2440	2439
561	70.43 A	68.368	325.978	71.097	309.298	561	2536	2635	2634	2734	2833	2832	2933	2932	3033	3032	3031	3030
							1292	1372	1371	1470	1469	1569	1568	1669	1668	1769	1768	1767
							1684	1683	1783	1782	1882	1881	1982	1981	2082	2081	2080	2079
							1948	2048	2047	2147	2146	2246	2245	2346	2345	2446	2445	2444
							2441	2440	2540	2539	2638	2637	2738	2737	2838	2837	2836	2835
							2834	2833	2933	2932	3032	3031	3131	3130	3231	3230	3229	3228



Table 2. Seasat IDR Greenland Catalog (Cont.)

REV NUMBER	APPROXIMATE LATITUDE AND DIRECTION AT 315.0 E LONG A = ASCENDING D = DESCENDING	STARTING LAT & LONG DEG N DEG E	ENDING LAT & LONG DEG N DEG E	NUMBER OF PTS	BINS THROUGH WHICH REV TRAVERSES									
489	71.14 A	68.763 330.180	71.722 307.495	720	1661 2161 2455 2749 3043 3336 3620	1617 2160 2555 2849 3143 3436 3920	1695 2260 2554 2847 3142 3437 3919	1775 2259 2553 2847 3141 3437 3920	1774 2258 2552 2847 3141 3437 3919	1773 2258 2553 2847 3141 3437 3919	1774 2259 2554 2847 3142 3437 3920	1963 2357 2651 2945 3239 3533 3919	2062 2356 2651 2945 3239 3533 3919	2061 2456 2750 3044 3338 3632 3926
245	71.15 A	69.067 328.919	70.450 320.785	229	1618 2358 2652	1618 2357 2657	1696 2457	1774 2256	2063 2455	2160 2555	2260 2554	2259 2553	2258 2552	2258 2553
532	71.28 A	69.400 328.495	71.623 310.516	708	1777 2458 2753 3047 3341 3634 3928	1775 2458 2853 3147 3440 3733 4027	1967 2557 2852 3146 3439 3733 4027	2263 2557 2851 3145 3438 3733 4027	2262 2557 2851 3145 3438 3733 4027	2362 2656 2950 3244 3537 3831 4125	2361 2655 2949 3243 3536 3830 4124	2360 2654 2948 3242 3535 3829 4123	2359 2653 2947 3241 3534 3828 4122	2358 2652 2946 3240 3533 3827 4121
288	71.29 A	69.283 329.279	71.658 310.165	543	1699 2357 2851 3145 3437 3731 4025	1778 2657 2951 3245 3536 3830 4124	1777 2656 2950 3244 3535 3829 4123	1968 2655 2949 3243 3534 3828 4122	2066 2755 3049 3343 3634 3928 4222	2362 2754 3048 3342 3633 3927 4221	2459 2753 3047 3341 3632 3926 4220	2458 2752 3046 3340 3631 3925 4219	2457 2751 3045 3339 3630 3924 4218	2456 2750 3044 3338 3629 3923 4217
776	71.31 A	68.722 332.305	71.946 304.707	747	1665 1969 2258 2552 2846 3140 3434 3728 4022	1543 1968 2657 2951 3245 3537 3831 4125	1622 2264 2656 2950 3244 3535 3829 4123	1621 2263 2756 3050 3343 3634 3928 4222	1700 2363 2755 3049 3343 3634 3927 4221	1699 2460 2754 3048 3342 3633 3926 4220	1778 2560 2854 3147 3440 3731 4025	1777 2559 2853 3146 3439 3730 4024	1776 2558 2852 3145 3438 3729 4023	1775 2557 2851 3144 3437 3728 4022
575	71.41 A	69.772 327.881	71.809 308.847	717	1970 2659 3052 3345 3638 3932	2070 2658 3051 3344 3637 3931	2069 2758 3050 3343 3636 3929	2068 2757 3150 3443 3736 4030	2168 2856 3149 3442 3735 4029	2167 2855 3148 3441 3734 4028	2267 2955 3248 3541 3834 4127	2266 2954 3247 3540 3833 4126	2265 2953 3246 3539 3832 4125	2264 2952 3245 3538 3831 4124
819	71.49 A	69.323 331.433	71.793 310.261	829	1703 2366 2761 3055 3349 3642 3936	1782 2466 2760 3054 3348 3641 3935	1878 2465 2759 3053 3347 3640 3934	1875 2565 2859 3153 3446 3739 4033	1974 2564 2858 3152 3446 3738 4032	2072 2563 2857 3151 3445 3737 4031	2071 2663 2957 3251 3544 3837 4130	2070 2662 2956 3250 3543 3836 4129	2069 2661 2955 3249 3542 3835 4128	2068 2660 2954 3248 3541 3834 4127
618	71.52 A	69.877 328.709	71.779 310.852	884	2072 2564 2858 3152 3446 3739 4033	2270 2664 2958 3252 3545 3839 4133	2269 2663 2957 3251 3544 3838 4132	2369 2662 2956 3056 3349 3642 3936	2368 2661 2955 3055 3348 3641 3935	2467 2660 2954 3054 3347 3640 3934	2466 2659 2953 3053 3346 3639 3933	2465 2658 2952 3052 3345 3638 3932	2464 2657 2951 3051 3344 3637 3931	2463 2656 2950 3050 3343 3636 3930

Table 2. Seasat IDR Greenland Catalog (Cont.)

REV NUMBER	APPROXIMATE LATITUDE AND DIRECTION AT 315.0 E LONG A = ASCENDING D = DESCENDING	STARTING LAT & LONG DEG N DEG E	ENDING LAT & LONG DEG N DEG E	NUMBER OF PTS	BINS THROUGH WHICH REV TRAVERSES									
417	71.63 A	69.747 331.077	71.963 308.100	928	1978	2077	2371	2569	2568	2668	2667	2666	2766	2766
					2765	2764	2864	2863	2862	2962	2961	2960	3060	3060
					3059	3058	3158	3157	3156	3256	3255	3254	3353	3353
					3353	3352	3351	3451	3450	3449	3448	3548	3547	3547
					3546	3545	3645	3644	3643	3642	3742	3741	3840	3840
					3739	3738	3838	3837	3836	3935	3934	3933	4033	4033
					3932	3931	4029	4028	4027	4025	4124	4121	4221	4221
					2078	2471	2569	2668	2667	2766	2765	2865	2864	2864
					2863	2963	2962	2961	3061	3060	3059	3158	3157	3157
					3156	3256	3255	3254	3354	3353	3352	3451	3451	3451
					3450	3449	3549	3548	3547	3546	3645	3645	3644	3644
					3741	3740	3739	3839	3838	3837	3936	3935	3935	3935
					3934	3933	3932	3931	4031	4029	4028	4027	4125	4125
					4124	4122	4028	4026	4126	4122	4028	4027	4125	4125
					1785	2078	2176	2472	2569	2668	2766	2765	2865	2865
					2864	2863	2963	2962	3061	3060	3059	3159	3159	3159
					3158	3157	3257	3256	3255	3254	3354	3353	3352	3352
					3452	3451	3450	3449	3549	3548	3547	3646	3646	3646
					3645	3644	3643	3743	3742	3741	3840	3839	3839	3839
					3838	3837	3836	3936	3935	3934	3933	3932	4032	4032
					4031	4029	4028	4026	4126	4122	4028	4027	4125	4125
					1709	1709	1709	1789	1884	1982	1981	2080	2376	2376
					2572	2671	2670	2768	2965	2964	3064	3063	3062	3062
					3162	3161	3160	3159	3259	3258	3257	3357	3356	3356
					3353	3352	3453	3452	3552	3551	3550	3549	3549	3549
					3648	3647	3646	3746	3745	3744	3843	3842	3841	3841
					3840	3839	3838	3938	3937	3936	3935	3934	4034	4034
					4033	4032	4031	4029	4129	4128	4126	4124	4122	4122
					1886	1986	2478	2576	2773	3165	3164	3262	3261	3261
					3360	3359	3358	3458	3457	3456	3555	3554	3553	3553
					3653	3652	3651	3650	3750	3749	3748	3747	3746	3746
					3846	3845	3844	3843	3942	3941	3940	3939	3938	3938
					3938	4038	4037	4036	4035	4034	4033	4032	4132	4132
					4128	4126	4125	4223	4222	4221	3163	3261	3361	3361
					2084	2675	2871	2968	3066	3164	3262	3361	3461	3461
					3360	3359	3459	3458	3558	3556	3555	3554	3553	3553
					3553	3552	3652	3651	3750	3749	3748	3747	3746	3746
					3847	3846	3845	3844	3943	3942	3941	3940	3939	3939
					3939	3938	4038	4037	4036	4035	4034	4033	4133	4133
					4132	4131	4130	4125	4225	4224	4223	4222	4322	4322
					2772	3167	3264	3364	3462	3461	3561	3661	3761	3761
					3259	3558	3557	3656	3655	3654	3753	3752	3751	3751
					3751	3750	3850	3849	3848	3847	3946	3945	3944	3944
					3944	3943	3942	4042	4041	4040	4039	4038	4037	4037
					4036	4136	4135	4133	4132	4228	4227	4226	4326	4326
503	71.81 A	69.687 334.318	72.033 308.179	618	1710	1709	1789	1788	1884	1982	1981	2080	2376	2376
					2572	2671	2670	2768	2965	2964	3064	3063	3062	3062
					3162	3161	3160	3159	3259	3258	3257	3357	3356	3356
					3353	3352	3453	3452	3552	3551	3550	3549	3549	3549
					3648	3647	3646	3746	3745	3744	3843	3842	3841	3841
					3840	3839	3838	3938	3937	3936	3935	3934	4034	4034
					4033	4032	4031	4029	4129	4128	4126	4124	4122	4122
					1886	1986	2478	2576	2773	3165	3164	3262	3261	3261
					3360	3359	3358	3458	3457	3456	3555	3554	3553	3553
					3653	3652	3651	3650	3750	3749	3748	3747	3746	3746
					3846	3845	3844	3843	3942	3941	3940	3939	3938	3938
					3938	4038	4037	4036	4035	4034	4033	4032	4132	4132
					4128	4126	4125	4223	4222	4221	3163	3261	3361	3361
					2084	2675	2871	2968	3066	3164	3262	3361	3461	3461
					3360	3359	3459	3458	3558	3556	3555	3554	3553	3553
					3553	3552	3652	3651	3750	3749	3748	3747	3746	3746
					3847	3846	3845	3844	3943	3942	3941	3940	3939	3939
					3939	3938	4038	4037	4036	4035	4034	4033	4133	4133
					4132	4131	4130	4125	4225	4224	4223	4222	4322	4322
					2772	3167	3264	3364	3462	3461	3561	3661	3761	3761
					3259	3558	3557	3656	3655	3654	3753	3752	3751	3751
					3751	3750	3850	3849	3848	3847	3946	3945	3944	3944
					3944	3943	3942	4042	4041	4040	4039	4038	4037	4037
					4036	4136	4135	4133	4132	4228	4227	4226	4326	4326
259	71.81 A	69.865 333.460	72.027 308.669	684	1710	1709	1789	1788	1884	1982	1981	2080	2376	2376
					2572	2671	2670	2768	2965	2964	3064	3063	3062	3062
					3162	3161	3160	3159	3259	3258	3257	3357	3356	3356
					3353	3352	3453	3452	3552	3551	3550	3549	3549	3549
					3648	3647	3646	3746	3745	3744	3843	3842	3841	3841
					3840	3839	3838	3938	3937	3936	3935	3934	4034	4034
					4033	4032	4031	4029	4129	4128	4126	4124	4122	4122
					1886	1986	2478	2576	2773	3165	3164	3262	3261	3261
					3360	3359	3358	3458	3457	3456	3555	3554	3553	3553
					3653	3652	3651	3650	3750	3749	3748	3747	3746	3746
					3846	3845	3844	3843	3942	3941	3940	3939	3938	3938
					3938	4038	4037	4036	4035	4034	4033	4032	4132	4132
					4128	4126	4125	4223	4222	4221	3163	3261	3361	3361
					2084	2675	2871	2968	3066	3164	3262	3361	3461	3461
					3360	3359	3459	3458	3558	3556	3555	3554	3553	3553
					3553	3552	3652	3651	3750	3749	3748	3747	3746	3746
					3847	3846	3845	3844	3943	3942	3941	3940	3939	3939
					3939	3938	4038	4037	4036	4035	4034	4033	4133	4133
					4132	4131	4130	4125	4225	4224	4223	4222	4322	4322
					2772	3167	3264	3364	3462	3461	3561	3661	3761	3761
					3259	3558	3557	3656	3655	3654	3753	3752	3751	3751
					3751	3750	3850	3849	3848	3847	3946	3945	3944	3944
					3944	3943	3942	4042	4041	4040	4039	4038	4037	4037
					4036	4136	4135	4133	4132	4228	4227	4226	4326	4326
546	71.87 A	70.772 328.430	72.053 308.300	603	1710	1709	1789	1788	1884	1982	1981	2080	2376	2376
					2572	2671	2670	2768	2965	2964	3064	3063	3062	3062
					3162	3161	3160	3159	3259	3258	3257	3357	3356	3356
					3353	3352	3453	3452	3552	3551	3550	3549	3549	3549
					3648	3647	3646	3746	3745	3744	3843	3842	3841	3841
					3840	3839	3838	3938	3937	3936	3935	3934	4034	4034
					4033	4032	4031	4029	4129	4128	4126	4124	4122	4122
					1886	1986	2478	2576	2773	3165	3164	3262	3261	3261
					3360	3359	3358	3458	3457	3456	3555	3554	3553	3553
					3653	3652	3651	3650	3750	3749	3748	3747		

Table 2. Seasat IDR Greenland Catalog (Cont.)

REV NUMBER	APPROXIMATE LATITUDE AND DIRECTION AT 315.0 E LONG A = ASCENDING D = DESCENDING	STARTING LAT & LONG DEG N DEG E	ENDING LAT & LONG DEG N DEG E	NUMBER OF PTS	BINS THROUGH WHICH REV TRAVERSES									
790	71.90 A	69.964 334.822	72.057 308.825	816	2188 3365 3364 3558 3852 3944 4137 4227	2187 3364 3658 3851 3943 4136 4226	2777 3464 3657 3850 4043 4135 4225	3071 3463 3656 3849 4042 4134 4224	3171 3462 3655 3848 4041 4133 4223	3170 3461 3755 3948 4040 4132 4220	3169 3561 3754 3947 4039 4130 4229	3168 3560 3753 3946 4038 4138 4228	3267 3559 3752 3945 4138 4229	
833	71.97 A	70.953 329.553	72.068 308.879	823	3174 3564 3757 3950 4143 4235	3271 3563 3856 3949 4142 4234	3369 3662 3853 4048 4140 4232	3369 3662 3853 4048 4140 4232	3467 3660 3853 4046 4138 4229	3466 3760 3951 4045 4137 4228	3466 3760 3952 4046 4138 4228	3565 3758 3951 4043 4135 4225		
632	71.98 A	70.462 333.710	72.066 308.696	920	2685 3566 3759 3952 4044 4136 4228	3077 3564 3758 3951 4043 4236 4226	3371 3564 3857 3950 4143 4235 4225	3370 3664 3857 3949 4142 4234 4224	3369 3663 3855 4049 4141 4233 4223	3469 3662 3855 4048 4140 4232	3468 3661 3854 4047 4139 4231	3466 3760 3952 4051 4142 4235		
876	72.00 A	70.937 331.007	72.064 308.925	767	3178 3665 3857 4141 4232	3372 3664 3856 4049 4140	3472 3763 3956 4047 4139	3471 3762 3955 4046 4239	3470 3761 3954 4146 4238	3568 3760 3953 4145 4237	3567 3860 3952 4144 4236	3566 3859 4051 4143 4235		
1478 1435 1392 1349 1306 1220 675	72.01 A 72.01 A 72.01 A 72.01 A 72.01 A 72.02 A	72.074 310.096 72.073 309.956 72.072 309.894 72.070 309.528 72.069 309.203 72.065 312.211 71.225 328.601	72.021 305.764 72.013 305.452 72.021 305.851 72.035 306.505 72.020 305.778 72.013 305.508 72.052 308.057	21 20 11 27 29 90 667	4226 4225 4224 4223 4222 4221 4220	4215 4214 4213 4212 4211 4210 4209	4216 4228 3857 4050 4142 4234 4224	4215 4226 3957 4049 4141 4233 4223	4225 3956 4048 4140 4232	4222 3955 4047 4139 4231	4215 3954 4147 4239 4230	4214 3953 4146 4238 4229		
431	72.02 A	70.988 331.061	72.058 308.991	785	3178 3860 4053 4145 4237	3471 3859 4052 4144 4236	3569 3857 4051 4143 4235	3666 3957 4050 4142 4234	3665 3957 4049 4141 4233	3763 3957 4048 4140 4232	3762 3955 4047 4139 4231	3761 3954 4147 4239 4230	3861 3957 4146 4238 4229	
187	72.02 A	70.710 333.624	72.049 308.229	823	2985 3763 3956 4048 4140 4232	2984 3762 3955 4148 4240	3278 3761 3954 4147 4239	3571 3861 3953 4146 4238	3569 3860 4052 4144 4236	3665 3859 4051 4144 4235	3665 3858 4051 4143 4234	3765 3958 4050 4142 4234		



Table 2. Seasat IDR Greenland Catalog (Cont.)

REV NUMBER	APPROXIMATE LATITUDE AND DIRECTION AT 315.0 E LONG A = ASCENDING D = DESCENDING	STARTING LAT & LONG DEG N DEG E	ENDING LAT & LONG DEG N DEG E	NUMBER OF PTS	BINS THROUGH WHICH REV TRAVERSES									
718	72.04 A	70.789 334.161	72.046 309.008	920	2986 3086 3085 3378 3571 3671 3670 3669 3668	3767 3766 3765 3958 3957 3956 3955 3954 3953	3766 3765 3764 3957 3956 3955 3954 3953 3952	3671 3670 3669 3668 3667 3666 3665 3664 3663	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662
474	72.05 A	71.147 330.993	72.042 308.969	740	3378 3571 3671 3669 3957 3956 3955 3954 3953	3766 3765 3764 3957 3956 3955 3954 3953 3952	3766 3765 3764 3957 3956 3955 3954 3953 3952	3671 3670 3669 3668 3667 3666 3665 3664 3663	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662
230	72.05 A	71.310 329.468	71.936 304.995	868	3574 3767 3766 3767 3766 3765 3764 3763 3762	3957 3956 3955 3954 3953 3952 3951 3950 3949	3957 3956 3955 3954 3953 3952 3951 3950 3949	3671 3670 3669 3668 3667 3666 3665 3664 3663	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662
517	72.06 A	71.108 332.832	71.997 308.170	677	3383 3382 3381 3380 3379 3378 3377 3376 3375	3957 3956 3955 3954 3953 3952 3951 3950 3949	3957 3956 3955 3954 3953 3952 3951 3950 3949	3671 3670 3669 3668 3667 3666 3665 3664 3663	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662
273	72.06 A	72.026 317.604	71.849 304.291	340	4229 4228 4227 4226 4225 4224 4223 4222 4221	4057 4056 4055 4054 4053 4052 4051 4050 4049	4057 4056 4055 4054 4053 4052 4051 4050 4049	3671 3670 3669 3668 3667 3666 3665 3664 3663	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662
761	72.06 A	71.338 330.727	72.011 308.893	867	3577 3576 3575 3574 3573 3572 3571 3570 3569	3957 3956 3955 3954 3953 3952 3951 3950 3949	3957 3956 3955 3954 3953 3952 3951 3950 3949	3671 3670 3669 3668 3667 3666 3665 3664 3663	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662
560	72.07 A	71.353 331.708	71.985 309.128	817	4232 4231 4230 4229 4228 4227 4226 4225 4224	4057 4056 4055 4054 4053 4052 4051 4050 4049	4057 4056 4055 4054 4053 4052 4051 4050 4049	3671 3670 3669 3668 3667 3666 3665 3664 3663	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662	3670 3669 3668 3667 3666 3665 3664 3663 3662
572	59.09 D	59.901 316.127	59.901 316.127	1	17	16	15	14	13	12	11	10	9	8
773	59.78 D	60.348 315.859	60.206 315.619	3	16	15	14	13	12	11	10	9	8	7
285	59.94 D	60.247 315.436	60.096 315.183	12	16	15	14	13	12	11	10	9	8	7
529	60.00 D	61.280 317.068	60.079 314.975	21	98	97	96	95	94	93	92	91	90	89
443	61.65 D	62.073 315.680	60.943 313.572	19	176	175	174	173	172	171	170	169	168	167
687	61.71 D	62.754 316.882	60.902 313.329	48	339	338	337	336	335	334	333	332	331	330
1189	62.02 D	63.842 318.874	60.967 313.056	139	134	133	132	131	130	129	128	127	126	125
1232	62.02 D	63.272 317.584	60.965 313.043	145	298	297	296	295	294	293	292	291	290	289
1275	62.02 D	63.861 318.903	60.970 313.046	125	339	338	337	336	335	334	333	332	331	330

Table 2. Seasat IDR Greenland Catalog (Cont.)

REV NUMBER	APPROXIMATE LATITUDE AND DIRECTION AT 315.0 E LONG A = ASCENDING D = DESCENDING	STARTING LAT & LONG		ENDING LAT & LONG		NUMBER OF PTS	BINS THROUGH WHICH REV TRAVERSES									
		DEG N	DEG E	DEG N	DEG E		258	257	217	176	175	258	257	217	176	175
1318	62.02 D	63.712	318.557	61.938	314.837	88	299	299	299	299	299	298	298	298	298	298
1361	62.02 D	63.622	318.353	60.830	312.793	83	339	339	339	339	339	339	339	339	339	339
1447	62.02 D	63.682	318.489	62.161	315.272	36	299	299	299	299	299	298	298	298	298	298
1490	62.02 D	63.685	318.500	61.940	314.846	70	299	299	299	299	299	298	298	298	298	298
1017	62.06 D	63.589	318.201	61.689	314.283	46	299	299	299	299	299	298	298	298	298	298
888	62.20 D	63.112	316.886	61.048	312.837	89	257	257	257	257	257	257	257	257	257	257
156	62.35 D	63.563	317.551	61.641	313.600	73	298	298	298	298	298	298	298	298	298	298
400	62.40 D	63.344	316.870	60.991	312.213	152	297	297	297	297	297	297	297	297	297	297
644	62.45 D	64.026	318.249	61.465	312.904	166	379	379	379	379	379	379	379	379	379	379
845	62.57 D	64.370	318.926	61.461	312.749	120	379	379	379	379	379	379	379	379	379	379
601	63.15 D	66.907	324.845	61.474	311.473	191	822	822	822	822	822	822	822	822	822	822
802	63.47 D	69.738	336.460	61.918	311.703	242	215	215	215	215	215	215	215	215	215	215
558	63.80 D	69.565	334.653	61.751	310.546	448	1992	1992	1992	1992	1992	1992	1992	1992	1992	1992
759	64.35 D	69.198	331.511	62.591	310.996	381	463	463	463	463	463	463	463	463	463	463
271	64.37 D	69.984	335.841	62.745	311.259	313	213	213	213	213	213	213	213	213	213	213
515	64.42 D	68.898	329.819	62.874	311.347	315	1790	1790	1790	1790	1790	1790	1790	1790	1790	1790
228	64.95 D	70.084	335.038	62.949	310.251	363	616	616	616	616	616	616	616	616	616	616
472	64.99 D	69.999	334.310	62.821	309.793	507	131	131	131	131	131	131	131	131	131	131
716	65.06 D	69.983	334.099	62.840	309.727	468	1624	1624	1624	1624	1624	1624	1624	1624	1624	1624
429	65.53 D	70.139	333.759	63.133	309.013	817	253	253	253	253	253	253	253	253	253	253

Table 2. Seasat IDR Greenland Catalog (Cont.)

REV NUMBER	APPROXIMATE LATITUDE AND DIRECTION AT 315.0 E LONG A = ASCENDING D = DESCENDING	STARTING LAT & LONG		ENDING LAT & LONG		NUMBER OF PTS	BINS THROUGH WHICH REV TRAVERSES									
		DEG N	DEG E	DEG N	DEG E		1978	1877	1698	1697	1616	1534	1533	1371	1289	
673	65.57 D	69.737	331.124	63.265	309.126	689	1978 1207 881 661 413 372 372 372 413 290 2791 1697 1207 815 609 372	1877 1206 1126 881 815 611 610 412 331 331 372 371	1698 1126 815 610 609 331	1697 1125 814 764 559 290 331	1616 1045 763 558	1534 1043 713 508	1533 1043 712 507	1371 963 712 507	1289 962 662 457	
1175 1218 1261 1390 1476 874	65.61 D 65.61 D 65.61 D 65.61 D 65.61 D 65.75 D	64.162 64.387 64.592 63.383 70.511 69.264	311.256 311.790 312.288 309.445 336.162 328.245	63.381 63.528 63.432 63.285 63.169 63.499	309.465 309.782 309.560 309.231 308.982 309.333	29 40 32 13 17 739	2791 1697 1207 815 609 372	290 372 331 331 372 371	249 1616 1126 763 558 290	1615 1125 762 508	1534 1043 712 507	1533 1043 661 456	1452 881 660 413	1287 880 610 412		
630	66.07 D	70.827	337.172	63.687	308.620	816	3093 1368 1041 812 557 1776 1366 960 711 506	1873 1367 1040 762 506 1696 1286 959 710 455	1778 1286 960 711 455 1695 1285 958 660 411	1696 1285 959 710 411 2175 1446 1120 812 607 3/0	1531 1204 878 659 608 1869 1364 1039 810 556	1450 1123 877 659 609 1775 1284 1038 762 557	1449 1122 814 609 608 1774 1283 1037 809 555	1448 1042 813 608 556		
831	66.19 D	69.477	327.958	64.275	309.734	814	711 506 3193 1692 1202 956 708 454	710 455 2479 1529 1201 876 658 453	660 411 2275 1447 1200 875 657 410	659 411 2175 1446 1120 812 607 3/0	658 608 1869 1364 1039 810 556	607 607 1775 1284 1038 760 555	607 607 1774 1283 1037 809 555	557 556		
587	66.55 D	70.986	337.118	64.639	309.448	863	3193 1692 1202 956 708 454	2479 1529 1201 876 658 453	2275 1447 1200 875 657 410	2175 1446 1120 812 607 3/0	1870 1364 1039 810 556	1775 1284 1038 760 555	1774 1283 1037 809 555	1693 1282 957 709 504		
788	66.82 D	71.121	337.569	65.203	310.106	844	3394 2172 1691 1281 956 758 504	3294 2071 1609 1280 955 708 503	3293 1969 1608 1200 875 707	3292 1868 1526 1199 874 657	2985 1867 1444 1119 873 656	2883 1774 1364 1118 810 606	2782 1773 1363 1117 809 555	2578 1772 1362 1037 809 555	2477 1692 1282 1036 759 554	
544	66.99 D	70.669	332.999	64.669	308.079	771	2883 1363 1117 809 604 3390 1523 1277 951 705	2781 1362 1116 759 554 2371 1522 1197 871 655	1968 1361 1036 759 553 2269 1441 1196 870 654	1867 1281 1035 707 503 2066 1965 1440 1115 808 604	1771 1279 953 706 452 1862 1360 1114 807 552	1526 1199 873 656 451 1770 1605 1359 1033 757 551	1443 1118 810 605 409 1605 1524 1278 952 706			
257	67.38 D	71.128	335.768	65.327	308.544	699	3390 1523 1277 951 705	2371 1522 1197 871 655	2269 1441 1196 870 654	2066 1965 1440 1115 808 603	1965 1440 1115 807 552	1862 1360 1114 807 551	1770 1605 1359 1033 757 551	1605 1524 1278 952 706		

Table 2. Seasat IDR Greenland Catalog (Cont.)

REV NUMBER	APPROXIMATE LATITUDE AND DIRECTION AT 315.0° E LONG A = ASCENDING D = DESCENDING	STARTING LAT & LONG DEG N DEG E	ENDING LAT & LONG DEG N DEG E	NUMBER OF PTS	BINS THROUGH WHICH REV TRAVERSES									
501	67.41 D	70.502 330.295	65.479 308.775	837	2776	2676	2269	2268	2168	2167	2166	2066	2065	
					1965	1862	1768	1605	1604	1603	1523	1522	1442	
					1441	1440	1360	1359	1358	1278	1277	1276	1196	
					1195	1115	1114	1113	1033	1032	952	951	950	
					870	869	808	807	757	756	706	705	654	
					653	552	551							
1161	68.10 D	71.460 336.674	66.215 308.406	16	3692	864	805	651	651	650	600			
1204	68.11 D	67.081 311.186	65.948 307.596	61	804	754	753	702						
1333	68.11 D	66.601 309.579	66.386 308.903	5	752	702								
1376	68.11 D	71.442 336.417	66.507 309.282	14	3692	3691	702							
1419	68.11 D	66.574 309.493	65.867 307.345	10	702	650	600							
1032	68.11 D	71.094 332.637	66.128 308.073	571	3282	2974	2873	2771	2669	2567	2566	2466	2465	
					2364	2263	1958	1957	1857	1856	1855	1764	1763	
					1762	1682	1681	1680	1600	1599	1598	1517	1436	
					1435	1355	1354	1273	1272	1271	1191	1109	1028	
					1027	1026	946	945	865	864	805	804	754	
					702	651								
659	68.19 D	71.155 332.783	66.965 310.253	678	3281	2974	2872	2770	2667	2567	2566	2466	2465	
					3382	3381	2464	2260	2160	2159	2059	2058	2057	
					2565	2465	1856	1855	1854	1764	1763	1762	1761	
					1957	1956	1679	1599	1598	1597	1517	1516	1435	
					1681	1680	1272	1271	1270	1190	1189	1108	1107	
					1434	1352	944	864	863	804	803			
616	68.53 D	71.567 336.124	66.730 308.023	691	3791	3277	2766	2765	2665	2664	2663	2563	2562	
					2561	2461	2460	2360	2359	2358	2253	2252	2156	
					2155	2055	2054	2053	1953	1952	1852	1851	1761	
					1760	1759	1758	1677	1676	1675	1595	1594	1593	
					1514	1513	1432	1431	1351	1350	1349	1269	1268	
					1267	1187	1186	1105	1104	1024	1023	942	941	
					802	801	751							
573	68.86 D	71.683 336.383	66.737 306.600	803	3591	3590	3581	3580	3579	3479	3478	3477	3375	
					3374	3273	3272	3170	3068	2965	2863	2763	2762	
					2761	2661	2660	2559	2558	2458	2457	2456	2356	
					2355	2354	2254	2253	2153	2152	2151	2051	2050	
					1950	1949	1848	1847	1758	1757	1756	1676	1675	
					1674	1593	1592	1511	1510	1430	1429	1428	1348	
					1347	1346	1266	1265	1184	1183	1103	1102	1101	
					1021	1020	940	857	800	799	749			
774	69.08 D	71.746 336.405	67.515 308.285	610	3992	3991	3271	3270	3269	3168	3167	3067	3066	
					3065	2965	2964	2963	2863	2862	2861	2761	2760	
					2759	2659	2658	2657	2557	2556	2555	2455	2454	
					2354	2353	2252	2251	2250	2150	2149	2049	2048	
					2048	1947	1946	1845	1755	1754	1672	1591	1509	
					1428	1427	1182	1181	1100	1099	1019	1018	938	
					937									
286	69.14 D	71.771 336.642	67.496 307.959	610	3371	3371	3271	3270	3269	3167	3065	3064	2964	
					2862	2862	2862	2861	2860	2760	2759	2758	2658	
					2657	2656	2556	2555	2455	2454	2453	2353	2352	
					2351	2251	2250	2150	2149	2148	2048	2047	1845	
					1754	1753	1673	1672	1671	1591	1590	1589	1427	
					1425	1345	1344	1264	1263	1262	1182	936		

Table 2. Seasat IDR Greenland Catalog (Cont.)

REV NUMBER	APPROXIMATE LATITUDE AND DIRECTION AT 315.0 E LONG A = ASCENDING D = DESCENDING	STARTING LAT & LONG DEG N DEG E	ENDING LAT & LONG DEG N DEG E	NUMBER OF PTS	BINS THROUGH WHICH REV TRAVERSES									
530	69.16 D	71.783 336.667	67.258 306.921	540	3992 3064 2758 2352 1753 1181 3471 2755 2449 2044 1669 1260 3985 3365 3059 2753 2447 2040 1666 1339 4090 3056 2548 2242 1837 3672 3056 2750 2344 1749 1421 1419 1664 1746 4088 3776 3157 2851 2545 2139 3877 3261 3054 2748 2343 1936 1499	3991 2964 2657 2351 1672 1099 3470 2655 2349 2043 1588 1015 3984 3364 3057 2752 2446 1940 1665 1176 3672 2956 2547 2141 1747 3262 2956 2650 2242 1747 1339	3990 2963 2657 2251 1590 1018 3368 2654 2348 1942 1586	3578 2962 2656 2250 1427 1017 937 3265 2663 2248 1942 1506	3577 2862 2556 2249 1426 936 3265 2653 2247 1841 1505	3371 2861 2555 2149 1425 936 3163 2552 2246 1752 1504	3370 2860 2554 2148 1344 935 3061 2551 2146 1751 1423	3270 2760 2454 1755 1263 855 2959 2451 2145 1750 1342	3166 2759 2453 1754 1262 854 2756 2450 2045 1670 1341	
243	69.42 D	71.233 328.002	67.725 307.375	453										
200	69.68 D	71.761 333.607	68.148 307.601	622										
444	69.70 D	71.878 335.777	68.822 310.346	494										
688	69.72 D	71.441 328.535	68.585 309.091	549										
1147 1190 1276 1405 1491 1018	69.83 D 69.83 D 69.83 D 69.83 D 69.83 D 69.84 D	68.745 309.391 69.286 311.992 69.477 312.978 71.876 334.953 71.879 334.999 71.597 330.040	68.715 309.251 68.940 310.282 69.005 310.574 68.154 306.807 68.874 309.950 69.251 311.723	7 12 24 2 14 548										
889	69.89 D	71.657 330.687	68.840 309.463	640										



Table 2. Seasat IDR Greenland Catalog (Cont.)

REV NUMBER	APPROXIMATE LATITUDE AND DIRECTION AT 315.0 E LONG A = ASCENDING D = DESCENDING	STARTING LAT & LONG DEG N DEG E	ENDING LAT & LONG DEG N DEG E	NUMBER OF PTS	BINS THROUGH WHICH REV TRAVERSES									
229	70.78 D	71.862 328.222	70.198 310.700	490	4071	4070	4069	3967	3759	3758	3757	3756	3656	
					3655	3654	3653	3553	3552	3551	3550	3450	3449	
					3448	3448	3347	3346	3345	3245	3244	3243	3143	
					3142	3141	3040	3039	2937	2936	2836	2835	2734	
473	70.79 D	72.062 335.966	69.723 307.589	667	2733	2632	2631	2531	2530	2429	2327	2327	2327	
					4290	4289	4288	4287	4283	4282	4180	4178	4177	
					4176	4175	4070	4068	4067	3965	3964	3963	3863	
					3862	3861	3860	3859	3759	3758	3757	3756	3656	
					3655	3654	3653	3553	3552	3551	3550	3450	3449	
					3448	3447	3446	3445	3345	3344	3244	3243	3143	
					3142	3141	3040	3039	3038	2936	2936	2835	2834	
717	70.81 D	72.045 333.944	70.013 309.212	700	2732	2632	2631	2428	2427	2327	1920	1919	1919	
					4285	4284	4179	4175	4070	4067	3967	3966	3965	
					3964	3963	3863	3862	3861	3860	3859	3759	3758	
					3757	3756	3755	3655	3654	3653	3652	3552	3551	
					3550	3549	3449	3448	3447	3347	3346	3345	3344	
					3244	3243	3242	3142	3141	3040	3039	3038	2937	
					2936	2835	2834	2733	2732	2632	2631	2529	2528	
186	70.95 D	72.065 336.063	69.641 305.868	680	2428	2427	2224	4287	4283	4282	4280	4279	4278	
					4291	4290	4288	4065	3962	3860	3859	3858	3857	
					4173	4170	4067	4065	3754	3753	3652	3651	3650	
					3856	3856	3756	3755	3547	3546	3446	3445	3444	
					3649	3549	3548	3547	3447	3446	3445	3444	3444	
					3343	3342	3341	3241	3240	3239	3139	3138	3137	
					3037	3036	3035	2934	2933	2833	2832	2831	2830	
					2730	2729	2628	2627	2424	2324	2323	2322	2222	
430	70.96 D	72.065 335.969	70.210 309.147	602	2221	1816	1815	4175	4172	4171	4069	4066	3961	
					4290	4280	4176	3755	3754	3753	3752	3652	3651	
					3859	3856	3756	3548	3547	3546	3446	3445	3444	
					3650	3649	3549	3548	3241	3240	3139	3138	3137	
					3343	3342	3341	3241	2934	2933	2832	2831	2830	
674	70.97 D	71.787 324.853	71.022 315.271	275	3136	3036	3035	3034	2934	2933	2932	2831	2830	
					2730	2729	2728	2628	2525	2425	2423	2423	2423	
					3963	3960	3855	3755	3754	3753	3752	3652	3651	
					3650	3649	3549	3548	3547	3546	3445	3443	3443	
1176	70.99 D	70.217 309.036	69.672 305.706	16	3342	3341	3241	3240	3239	3238	3138	3137	3136	
1219	70.99 D	70.564 311.469	70.220 309.040	18	2423	2322	2321	2221	1815	1814	1814	1814	1814	
1305	70.99 D	72.074 335.822	72.074 335.725	4	2729	2628	2627	2526	2424	2423	2423	2423	2423	
1391	70.99 D	72.072 336.306	69.615 305.362	21	4290	4290	4288	4287	1814	1814	1814	1814	1814	
1434	70.99 D	72.074 335.714	69.657 305.594	2	4291	4291	4290	4289	4288	4287	4287	4287	4287	
1477	70.99 D	72.074 336.011	70.064 308.019	23	4291	4291	4290	4289	4288	4287	4287	4287	4287	
875	71.03 D	72.062 333.541	69.867 306.464	596	4284	4170	4067	4065	3962	3860	3859	3858	3857	
					3857	3856	3855	3854	3754	3753	3752	3652	3651	
					3650	3649	3648	3548	3547	3546	3446	3445	3444	
					3443	3442	3342	3341	3340	3240	3239	3238	3237	
					3137	3136	3135	3033	2933	2932	2832	2831	2830	
					2728	2525	2423	2422	2322	2321	2321	2321	2321	

Table 2. Seasat IDR Greenland Catalog (Cont.)

REV NUMBER	APPROXIMATE LATITUDE AND DIRECTION AT 315.0 E LONG A = ASCENDING D = DESCENDING	STARTING LAT & LONG DEG N DEG E		ENDING LAT & LONG DEG N DEG E		NUMBER OF PTS	BINS THROUGH WHICH REV TRAVERSES									
631	71.13 D	72.056	336.124	69.971	305.989	600	4291 4062 3852 3645 3545 3339 3132 2115	4282 3959 3851 3545 3338 3032	4281 3958 3751 3544 3337 3031	4277 3957 3750 3543 3237 3030	4274 3956 3748 3542 3236 2929	4273 3955 3748 3542 3235 2928	4172 3855 3641 3441 3135 2827	4167 3854 3640 3440 3134 2826	4064 3853 3646 3439 3133 2116	
832	71.16 D	72.069	333.945	70.693	310.739	564	4285 4255 3854 3647	4275 3853 3646 3439 3133	4273 3852 3645 3339 3132	4063 3851 3644 3337 3032	4060 3751 3544 3236 3031	3958 3750 3543 3235 2930	3957 3749 3542 3234 2929	3956 3748 3541 3233 2928	3955 3747 3540 3232 2928	
588	71.27 D	72.062	331.181	70.796	310.395	735	4278 4060 3952 3735 3538 3028	4273 4059 3852 3744 3438 3027	4167 4058 3851 3644 3437 2927	4166 4057 3850 3642 3436 2926	4165 4056 3849 3642 3435 2925	4163 3956 3848 3641 3434 2924	4162 3955 3748 3541 3233 2923	4161 3954 3747 3540 3232 2922	4061 3953 3746 3539 3230 2921	
258	71.51 D	72.062	328.753	70.994	309.425	754	4272 4161 3945 3738 3431	4270 4160 4052 3845 3638 3329	4267 4159 4051 3844 3637 3327	4266 4158 4050 3843 3636 3226	4265 4156 4049 3842 3635 3225	4264 4155 4049 3841 3635 3124	4263 4155 4048 3741 3534	4262 4055 3947 3740 3533	4162 4054 3946 3739 3532	
502 459	71.51 D 71.62 D	71.922 72.061	322.051 327.099	71.279 71.118	312.062 308.974	35 777	4156 4258 4051 3943 3736 3528	4155 4267 4158 4050 3735 3426	4154 4265 4157 4049 3734 3525	4054 4264 4156 4048 3841 3524	4053 4263 4155 4047 3839 3523	4052 4262 4154 4046 3839 3522	4261 4260 4153 4045 3837 3631	4260 4152 4151 3945 3837 3530	4259 4151 4150 3944 3837 3529	
1162 1205 1248 1291 1377 172	71.70 D 71.70 D 71.70 D 71.70 D 71.70 D 71.71 D	71.432 71.435 71.526 71.881 71.881 71.995	311.229 311.242 312.374 335.984 335.975 332.362	71.270 71.240 71.247 71.885 71.882 71.255	309.385 309.042 309.102 335.908 335.938 309.116	26 34 47 3 3 609	4273 4155 4047 3939 3732 4182 4260 4251 4144 3937 3522	4272 4154 4046 3938 3732 4181 4259 4250 4143 3936 3213	4270 4153 4045 3838 3629 4274 4257 4150 4042 3934 4140	4267 4152 4044 3836 3628 4273 4257 4149 4040 3933 4039	4263 4151 4043 3836 3628 4272 4256 4148 4040 3833	4260 4150 4042 3834 3624 4264 4255 4147 4039 3832	4257 4149 3942 3834 3423 4263 4254 4146 4039 3729	4256 4148 3941 3734		
617	71.80 D	71.753	336.435	70.990	304.690	612	4281 4063 3854 3646 3439 3133	4273 3852 3645 3339 3132	4270 3851 3644 3337 3032	4267 3850 3642 3336 3031	4266 3750 3544 3236 2929	4263 3955 3748 3542 3235 2928	4260 4150 4042 3834 3624 4263 4254 4147 4039 3832	4257 4149 3942 3834 3423 4263 4254 4146 4039 3729	4256 4148 3941 3734	
574	71.87 D	72.064	324.774	71.898	315.464	33	4262 4040 3838 3637 3522	4258 4039 3836 3635 3521	4257 4038 3835 3634 3520	4256 4037 3834 3633 3519	4255 4036 3833 3632 3518	4254 4035 3832 3631 3517	4253 4034 3831 3630 3516	4252 4033 3830 3629 3515	4251 4032 3829 3628 3514	







Table 3. Summary of Seasat Greenland Orbit Adjustment

REV	NUM PTS	(1)	COEFFICIENTS (2)	(3)	TIME (FRAC OF DAY) AT 310.E 320.E 330.E	ORB ADJ (M) AT 310.E 320.E 330.E	LAT START	LONG START	LAT END	LONG END
146	81	-0.12110D 01	0.14418D 03	0.0	.0136293 .0122073 .0101568	0.744 0.539 0.243	60.89	315.24	64.29	308.22
147	73	-0.43670D 02	0.59160D 04	-0.13509D 06	.0210071 .0196586 .0187124	0.297 -0.249 -0.966	63.56	317.55	61.64	313.60
156	561	-0.51920D -01	0.93662D 02	-0.89803D 04	.0042160 .0036242 .0030267	0.183 0.170 0.149	71.29	335.71	71.89	309.84
160	330	-0.63429D 00	-0.59256D 02	-0.41959D 01	.0145630 .0134766 .0119976	-0.230 -0.165 -0.077	64.52	316.49	67.71	306.79
172	609	-0.58524D 01	0.61031D 03	-0.12859D 05	.0185198 .0179070 .0173161	0.986 0.900 0.808	71.99	332.36	71.25	309.12
173	824	-0.28782D 01	0.37241D 03	-0.19329D 05	.0183854 .0097581 .0090887	0.869 0.869 0.728	69.81	330.91	71.95	308.76
174	386	-0.44679D 01	0.82876D 03	-0.33454D 04	.0080864 .0072107 .0060886	0.046 -0.231 -0.662	66.47	331.89	69.76	306.14
186	680	-0.25743D 01	0.68048D 02	0.40014D 04	.0191070 .0184454 .0173369	0.187 0.042 -0.087	72.07	336.06	69.64	305.87
187	823	0.44943D 01	-0.48294D 03	0.10888D 05	.0175368 .0169438 .0163213	-0.626 -0.563 -0.488	70.71	333.62	72.05	308.23
189	100	-0.39230D 01	0.23892D 03	0.0	.0137990 .0124429 .0105042	0.612 0.950 -1.413	61.25	316.03	64.85	308.25
200	622	-0.14266D 01	0.27565D 02	0.0	.0197759 .0190297 .0183764	0.881 0.902 -0.920	71.76	333.61	68.15	307.60
201	728	-0.21048D 01	0.20605D 03	-0.51261D 04	.0180666 .0174732 .0168784	-0.951 -0.069 -0.087	71.45	335.18	71.56	305.44
228	363	-0.19108D 00	-0.81355D 02	0.0	.0210172 .0199209 .0190606	-1.901 -1.812 -1.742	70.08	335.04	62.95	310.25
229	490	-0.17429D 01	0.26477D 02	0.0	.0192046 .0185320 .0179181	-1.234 -1.252 -1.269	71.86	328.22	70.20	310.70
230	868	0.10406D 01	-0.15646D 03	0.19027D 04	.0176171 .0170256 .0164095	-1.125 -1.072 -1.014	71.31	329.47	71.94	305.00
231	560	0.27936D 00	-0.21042D 03	0.52791D 04	.0084486 .0077227 .0068522	-1.122 -1.031 -0.915	67.65	326.12	70.60	310.84
232	243	-0.54555D 00	-0.11053D 03	0.19396D 04	.0193904 .0191262 .0184626	-1.128 -1.374 -1.495	61.71	328.00	67.72	308.52
243	453	-0.28232D 01	0.18069D 03	-0.48117D 04	.0181430 .0175411 .0169545	-1.129 -1.134 -1.143	71.43	336.94	71.56	306.85
244	693	-0.34997D 01	0.23700D 03	0.0	.0104402 .0097909 .0090519	-1.025 -1.179 -1.354	69.07	328.92	70.45	320.78
245	259	-0.53465D 01	0.13637D 04	-0.13418D 04	.0035649 .0026540 .0019042	-0.885 -1.727 -2.750	71.13	335.77	65.33	308.54
257	699	-0.20606D 01	-0.10706D 02	0.27133D 05	.0187016 .0180763 .0174824	1.591 1.429 1.463	72.06	328.75	72.03	309.42
258	754	-0.32130D 01	0.74437D 03	-0.36284D 05	.0209776 .0196561 .0187688	0.400 0.434 0.370	69.98	335.84	62.74	311.26
260	434	-0.60361D 00	-0.10232D 03	0.10582D 05	.0209172 .0186326 .0180127	0.556 -0.570 -0.585	72.03	326.80	71.85	304.29
271	810	-0.16634D 01	0.12050D 03	-0.50886D 03	.0193172 .0178131 .0165025	0.405 0.418 0.432	67.85	326.80	70.87	310.09
273	340	-0.98281D 00	0.24124D 02	0.0	.0177036 .0171131 .0160976	0.246 -0.160 -0.729	62.10	317.30	66.35	306.91
274	482	-0.41345D 00	0.18943D 03	-0.23432D 04	.0085316 .0128791 .0111407	0.246 -0.160 -0.729	62.10	317.30	66.35	306.91
275	207	-0.43804D 01	0.32737D 03	0.0	.0141176 .0128791 .0111407	0.246 -0.160 -0.729	62.10	317.30	66.35	306.91
285	12	-0.60857D 01	0.25260D 02	0.0	.0230697 .0215595 .0204546	-0.086 -0.124 -0.152	60.25	315.44	60.10	305.18
286	610	-0.20817D 01	0.22029D 03	-0.66123D 04	.0200137 .0192300 .0185551	-0.358 -0.297 -0.277	71.77	336.64	67.50	307.96
287	723	-0.91502D 01	0.86317D 03	-0.18735D 05	.0182321 .0176332 .0170419	0.359 0.245 0.119	71.99	327.97	71.68	310.00
288	533	-0.43283D 01	0.43045D 03	-0.11261D 05	.0167354 .0160951 .0153724	-0.278 -0.317 -0.372	69.28	329.28	71.66	310.17
289	357	-0.50051D 01	0.31640D 03	0.0	.0149612 .0139897 .0127060	-0.271 -0.579 -0.985	65.59	318.53	68.10	309.56
401	254	-0.17572D 01	0.12516D 03	0.0	.0223424 .0210421 .0200607	0.448 -0.285 0.163	63.34	316.87	60.99	312.21
417	928	-0.46350D 01	0.80768D 03	-0.27048D 04	.0196448 .0189176 .0182748	-0.186 -0.281 -0.363	71.68	330.61	68.90	309.26
418	313	-0.30628D 01	0.40334D 03	-0.27221D 05	.0104255 .0098073 .0091262	0.827 0.668 0.469	69.75	331.08	71.96	308.10
429	817	-0.15870D 01	0.60917D 02	0.0	.0080285 .0071490 .0060206	-0.287 -0.350 -0.401	70.14	333.76	63.13	309.01
430	602	-0.13742D 01	0.34040D 02	0.0	.0213475 .0202986 .0194665	-0.287 -0.350 -0.401	70.14	333.76	63.13	309.01
431	785	-0.23153D 01	0.29412D 03	-0.86364D 04	.0190901 .0184300 .0178221	0.724 -0.747 -0.768	72.06	335.97	70.21	309.15
432	437	-0.34115D 00	-0.18487D 02	0.0	.0175274 .0169341 .0163107	0.187 0.189 0.139	67.26	335.91	70.64	308.91
443	19	-0.61101D 01	0.26376D 03	-0.17554D 04	.0083462 .0076016 .0066995	0.065 0.099 0.139	67.26	335.91	70.64	308.91
444	494	-0.37919D 01	0.65066D 03	0.0	.0225649 .0212029 .0201852	-0.158 -0.518 -0.786	62.07	335.68	60.94	315.57
445	718	-0.33461D 00	-0.15481D 02	0.0	.0042859 .0035421 .0028900	-1.003 -1.487 -1.911	71.88	335.78	68.62	310.35
446	651	-0.46508D 00	-0.10909D 03	-0.78595D 04	.0180477 .0174545 .0168594	-0.614 -0.605 -0.596	71.85	331.88	71.85	310.05
449	777	-0.11155D 01	0.19972D 03	-0.60502D 04	.0101422 .0094816 .0087227	-0.167 0.137 -0.111	69.13	336.99	71.39	310.68
459	790	-0.54749D 00	0.17605D 03	-0.83006D 04	.0186035 .0179856 .0173938	0.506 0.320 0.528	72.06	327.10	71.12	308.97
461	294	-0.12633D 01	0.13393D 03	0.0	.0105549 .0099426 .0092733	0.386 0.382 0.371	69.59	334.50	71.99	308.47
472	507	-0.22462D 00	-0.28452D 03	0.11458D 05	.0081365 .0072835 .0061995	-0.616 -0.642 -0.690	67.04	334.31	69.85	306.81
473	667	-0.12911D 01	0.10346D 02	-0.24800D 04	.0215009 .0204102 .0195532	-0.592 -0.805 -0.950	72.06	335.97	69.72	307.79
474	740	-0.29567D 01	0.33546D 03	-0.95676D 04	.0191956 .0185245 .0179114	-0.179 -0.248 -0.310	72.06	335.97	69.72	307.79
475	335	-0.26823D 01	0.48233D 03	0.0	.0176147 .0170230 .0164062	-0.016 -0.019 -0.028	71.15	330.99	72.04	308.97
476	59	-0.45254D 01	-0.31046D 03	0.0	.0083867 .0076587 .007847	-0.485 -0.279 -0.179	68.12	324.12	64.53	310.75
488	748	-0.44672D 01	0.48252D 03	-0.11995D 05	.0139308 .0126281 .0107802	-0.200 -0.605 -0.606	61.57	316.70	64.53	310.75
					.0181377 .0175422 .0169492	0.339 0.306 0.265	71.97	327.14	71.82	310.97

Table 3. Summary of Seasat Greenland Orbit Adjustment (Cont.)

REV	NUM PTS	(1)	COEFFICIENTS (2)	(3)	TIME (FRAC OF DAY) AT 310.E 320.E 330.E	ORB ADJ (M) AT 310.E 320.E 330.E	LAT START	END LAT	END LON
489	720	-0.52949D 00	0.81687D 02	-0.71534D 04	0103946 .0097440 .0090029	-0.453 -0.413 -0.374	68.76	71.72	330.18
490	218	-0.34325D 01	0.24106D 03	0.0	0148157 .0138039 .0124519	0.119 -0.125 -0.451	65.15	68.03	317.56
501	837	-0.10277D 00	-0.85274D 02	0.38448D 04	0106891 .0197825 .0190351	-0.228 -0.292 -0.339	70.50	65.48	330.30
502	35	0.23097D 01	-0.17159D 02	-0.42202D 03	0186966 .0180721 .0174785	0.533 0.597 0.657	71.92	71.28	322.05
503	618	-0.27769D 01	0.63743D 03	-0.25960D 05	0107065 .0100993 .0094408	-1.072 1.013 0.927	69.69	72.03	334.32
504	217	-0.48000D 00	0.43498D 02	-0.63646D 04	0081448 .0073164 .0062737	0.415 -0.395 -0.379	67.12	69.76	320.46
515	315	-0.52025D 00	-0.38474D 03	-0.14660D 05	0206696 .0195340 .0186503	-1.169 -1.401 -1.556	68.90	62.87	329.82
516	731	-0.93567D 00	0.72897D 02	-0.31930D 04	0193017 .0186187 .0179996	-0.720 -0.687 -0.660	72.02	72.00	334.12
517	677	-0.27168D 00	0.59870D 02	-0.32302D 04	0176994 .0171088 .0164976	-0.578 -0.535 -0.493	71.11	72.00	332.83
518	529	-0.68355D 01	-0.14402D 03	0.92952D 03	0085196 .0078071 .0069592	-0.476 -0.384 -0.273	67.88	70.85	326.51
519	180	-0.49439D 01	0.33202D 03	0.0	0140940 .0128486 .0110984	-0.264 -0.678 -1.259	62.16	66.31	317.01
529	21	-0.15878D 01	0.16970D 02	0.0	0230598 .0215591 .0204598	-1.197 -1.222 -1.241	61.28	60.08	317.07
530	540	-0.66315D 00	-0.31434D 03	0.14557D 05	0200015 .0192293 .0185469	-1.127 -1.327 -1.486	71.78	67.26	336.67
532	708	-0.12580D 01	0.87780D 02	-0.43381D 04	0167259 .0160845 .0153598	-1.003 -0.968 -0.933	69.40	71.62	328.49
544	771	-0.21890D 00	0.53618D 03	-0.17008D 04	0208381 .0199008 .0191352	-0.508 -0.444 -0.394	70.67	64.67	333.00
546	603	-0.31803D 01	0.53292D 03	-0.21168D 05	0108928 .0102900 .0096414	0.113 0.062 -0.010	70.77	72.05	328.43
547	403	-0.18077D 00	-0.77359D 02	-0.29603D 01	0080378 .0072322 .0062277	-0.802 -0.740 -0.662	66.58	69.65	323.71
558	448	-0.12711D 02	0.58796D 03	0.0	0213264 .0201423 .0192297	-0.172 -0.869 -1.405	69.56	61.75	334.65
559	749	-0.66677D 00	0.13232D 03	-0.54660D 04	0194110 .0187130 .0180892	-0.157 -0.105 -0.061	71.93	69.50	332.48
560	817	-0.71416D 00	0.15878D 03	-0.60572D 04	0177830 .0171927 .0165865	0.194 0.225 0.253	71.35	71.98	331.71
561	561	-0.10414D 01	-0.14038D 03	0.0	0093084 .0086102 .0077864	-0.115 -0.039 0.053	68.37	71.10	325.98
562	428	-0.31942D 01	0.27050D 03	0.0	0142508 .0130584 .0113988	-0.661 -0.338 -0.111	63.35	66.79	315.97
572	1	-0.20105D 01	0.66440D 02	0.0	0228817 .0213031 .0201582	-0.490 -0.595 -0.671	59.13	59.90	316.13
573	803	-0.10919D 01	-0.35027D 03	0.18449D 05	0083177 .0177136 .0171251	0.090 -0.006 -0.101	72.06	71.90	324.77
574	33	-0.28538D 01	0.16073D 03	0.0	0201206 .0193186 .0186330	-0.671 -0.973 -1.213	71.68	66.74	336.38
575	717	-0.72747D 00	0.11471D 03	-0.55055D 04	0100480 .0094139 .0087054	-0.138 -0.135 -0.146	69.77	71.81	327.88
576	310	-0.41394D 01	0.27561D 03	0.0	0148800 .0139736 .0127031	-0.038 -0.298 -0.638	65.80	68.26	318.67
587	863	-0.52232D 00	-0.22782D 02	-0.22444D 04	0209599 .0200256 .0192404	0.011 -0.079 -0.130	70.99	64.64	337.12
588	735	-0.22530D 00	0.21295D 02	0.0	0188834 .0182434 .0176443	0.627 0.614 0.601	72.06	70.80	337.18
590	404	-0.93650D 00	0.72956D 03	-0.25987D 04	0082158 .0074313 .0064623	-0.313 -0.538 -0.574	66.66	70.20	324.87
591	26	-0.28336D 01	0.21549D 03	0.0	0134026 .0118896 .0096857	-0.054 -0.272 -0.746	61.33	62.62	312.63
601	191	-0.54196D 00	0.48979D 02	0.0	0217531 .0205145 .0195729	-0.436 -0.381 -0.338	66.91	61.47	324.85
603	743	0.31177D 01	-0.14956D 03	-0.13235D 04	0178686 .0172780 .0166761	0.025 0.141 0.258	70.90	71.74	337.68
604	103	0.38382D 01	-0.44963D 03	0.0	0095801 .0088930 .0080937	1.193 1.133 1.049	63.78	67.11	320.37
605	321	-0.42887D 00	0.53125D 02	0.0	0143912 .0132480 .0126724	0.193 0.141 0.672	63.78	67.11	316.46
616	691	-0.23613D 00	0.35799D 01	0.0	0202547 .0194301 .0187314	-0.164 -0.057 -0.169	71.57	70.99	336.44
617	612	-0.72551D 00	-0.4807D 02	0.0	0183802 .0177738 .0171835	-0.083 -0.057 -0.031	71.75	71.78	328.71
618	884	-0.36542D 00	0.18952D 03	-0.12268D 05	0091637 .0085131 .0077732	0.342 0.359 0.366	66.17	68.77	319.00
619	293	-0.13439D 01	0.18757D 03	0.0	0078671 .0069536 .0057732	-0.152 -0.039 -0.261	66.17	68.77	319.00
630	816	-0.22449D 00	0.55557D 02	-0.50544D 04	0175724 .0165666 .0157602	-0.360 -0.242 -0.155	70.83	63.69	337.17
631	600	-0.70349D 00	0.63554D 01	0.0	0189820 .0183330 .0177301	-0.583 -0.587 -0.591	72.06	72.07	336.12
632	920	-0.45207D 01	0.49139D 03	-0.13490D 05	0174279 .0168320 .0162005	0.054 -0.072 -0.100	70.46	72.07	333.71
633	330	-0.76020D 00	0.10985D 03	-0.76577D 04	0082365 .0074916 .0065555	-0.375 -0.367 -0.369	67.49	70.20	323.49
634	49	-0.26214D 01	0.21664D 03	0.0	0135752 .0121332 .0100540	0.320 0.008 -0.443	61.11	63.43	314.48
644	166	-0.17481D 01	0.91526D 02	0.0	0223023 .0210091 .0200320	-0.293 0.175 0.085	64.03	61.47	318.25
645	635	-0.60559D 00	-0.16892D 03	0.91320D 04	0196156 .0188903 .0182486	-0.405 -0.538 -0.647	71.92	68.86	335.14
646	799	-0.16482D 01	0.28442D 03	-0.55761D 04	0179370 .0173655 .0167672	0.546 0.555 0.558	71.07	71.61	337.51
647	574	-0.16889D 01	-0.24719D 03	0.0	0097466 .0090737 .0082932	-0.191 -0.095 0.022	69.39	71.39	324.06
648	403	-0.17481D 01	0.25990D 03	0.0	0203917 .0134311 .0119362	1.029 0.743 0.789	63.90	66.97	317.62
659	678	-0.26145D 01	-0.77134D 02	0.64237D 04	0203903 .0195414 .0188284	-0.516 -0.668 -0.754	71.16	66.97	332.78
662	383	-0.15501D 01	0.2377D 03	0.0	0053660 .0044833 .0033494	-0.242 -0.457 -0.734	66.46	69.84	319.56
673	689	-0.34334D 01	0.15890D 03	0.0	0213266 .0202824 .0194531	-0.045 -0.211 -0.342	69.74	63.26	331.12
674	275	-0.29892D 01	0.73931D 03	-0.28335D 05	0190846 .0184257 .0178184	0.793 1.007 1.182	71.79	71.02	324.85
675	667	-0.38616D 01	0.33064D 03	-0.71485D 04	0175169 .0169233 .0162992	-0.263 -0.313 -0.378	71.22	72.05	328.60
676	649	-0.13111D 01	0.94868D 02	-0.24068D 04	0083505 .0076038 .0066983	-0.687 -0.729 -0.784	68.00	70.34	323.00
677	71	-0.42031D 01	0.24114D 03	0.0	0137527 .0123803 .0104139	-0.887 -1.218 -1.692	61.45	63.76	315.31

Table 3. Summary of Seasat Greenland Orbit Adjustment (Cont.)

REV	NUM PTS	(1)	COEFFICIENTS (2)	(3)	TIME (FRAC OF DAY) AT 310.E 320.E 330.E	ORB ADJ (M) AT 310.E 320.E 330.E	LAT START	LONG START	LAT END	LONG END
687	48	-0.53583D 01	0.24916D 03	0.0	.02232333 .0209689 .0199557	0.204 -0.134 -0.386	62.75	316.88	60.90	313.33
688	569	-0.26259D 01	0.12075D 03	0.0	.0184121 .0176703 .0170194	-0.403 -0.492 -0.571	71.44	328.54	68.58	309.09
689	636	-0.52961D 01	0.47423D 03	-0.92901D 04	.0175776 .0169856 .0133892	0.169 -0.078 -0.155	71.74	329.75	71.81	309.01
690	527	-0.90309D 00	0.67295D 02	-0.44393D 04	.0098189 .0091571 .0083960	-1.136 -1.147 -1.019	68.59	329.35	71.79	304.69
691	195	-0.61915D 01	0.42190D 03	0.0	.0146720 .0136167 .0121906	-0.001 -0.447 -1.048	64.20	318.36	66.93	310.66
716	468	-0.65697D 00	0.29347D 03	0.10743D 05	.0214093 .0203219 .0194669	-0.702 -0.870 -0.985	69.98	334.10	62.84	309.73
717	700	-0.89886D 00	0.47368D 02	0.50560D 03	.0191887 .0185184 .0179056	0.196 -0.152 -0.111	72.04	333.94	70.91	309.21
718	920	-0.22140D 01	0.16038D 03	0.10412D 04	.0176033 .0170115 .0163942	-0.287 -0.213 -0.135	70.79	334.16	72.05	310.01
719	532	-0.53492D 00	0.73005D 02	-0.12410D 04	.0084287 .0076998 .0068241	-0.169 -0.101 -0.021	68.11	326.06	70.61	310.51
720	214	-0.34349D 01	0.27965D 03	0.0	.0139312 .0126249 .0107710	-0.239 -0.604 -1.123	61.73	316.32	65.54	307.59
729	381	-0.14273D 01	0.24034D 03	0.73522D 04	.0205231 .0193820 .0185938	-0.408 -0.469 -0.503	69.20	331.51	62.59	311.00
760	617	-0.18052D 00	0.86919D 02	0.52664D 04	.0193131 .0186280 .0180078	0.107 -0.030 -0.036	71.89	330.39	70.04	311.17
761	867	-0.14566D 01	0.25129D 03	-0.89824D 04	.0177084 .0171179 .0165076	0.177 -0.213 -0.244	71.34	330.73	72.01	308.89
762	328	-0.1821D 01	0.90856D 02	0.0	.0085572 .0078476 .0070044	0.211 -0.306 -0.416	68.06	326.10	70.61	312.34
763	307	-0.39935D 01	0.31157D 02	0.26688D 04	.0141185 .0128839 .011521	0.405 -0.021 -0.519	62.29	317.04	66.39	315.62
773	3	-0.17659D 01	0.32815D 02	0.0	.0215439 .0200408 .018285	-1.058 -1.108 -1.145	60.35	315.86	67.51	308.28
774	610	-0.36163D 00	0.40271D 03	0.18071D 05	.0200376 .0192502 .0187332	-1.175 -1.617 -1.607	71.69	325.08	71.64	309.63
775	745	-0.70769D 01	0.66800D 03	0.15515D 05	.0182548 .0176553 .0170642	-0.053 -0.119 -0.196	65.27	332.31	68.77	307.03
776	747	-0.16223D 01	0.19174D 03	0.24897D 04	.0167520 .0161134 .0153938	-0.891 -0.821 -0.739	68.72	319.18	65.20	310.11
777	388	-0.16154D 01	0.14213D 03	0.61157D 04	.0149790 .0140146 .0127429	-0.859 -0.825 -0.797	71.12	337.57	72.06	308.82
788	844	-0.73024D 00	0.42147D 03	0.18465D 05	.0187574 .0178059 .0170319	-0.679 -0.920 -1.092	69.96	334.82	70.44	306.59
790	816	-0.33120D 01	0.48584D 03	0.18149D 05	.0109212 .0103263 .0096819	-0.170 -0.230 -0.309	66.73	323.91	70.44	306.59
791	340	-0.33810D 00	0.89363D 02	0.17145D 04	.0081650 .0073706 .0063832	-0.954 -0.904 -0.839	61.04	332.42	61.32	311.91
792	6	-0.14459D 01	0.97731D 02	0.0	.0133005 .0117471 .0094755	0.475 -0.151 -0.097	69.74	336.46	61.92	311.70
802	242	-0.46850D 01	0.26695D 03	0.0	.0193206 .0181158 .0171857	0.392 -0.359 -0.406	71.50	330.77	71.74	304.18
803	474	-0.10734D 01	0.61533D 02	0.13632D 04	.0194725 .0187685 .0181383	-0.254 -0.210 -0.157	68.51	327.11	71.60	304.31
804	634	-0.49028D 01	0.51110D 03	0.12490D 05	.0178309 .0172406 .0166370	-0.101 -0.028 -0.064	63.78	315.91	66.82	307.58
805	447	-0.12674D 01	0.18267D 03	0.41057D 04	.0095387 .0088486 .0080387	0.623 -0.247 -0.273	69.32	331.43	71.79	310.26
806	408	-0.40167D 01	0.32366D 03	0.0	.0143346 .0131728 .0115654	-0.239 -0.331 -0.444	65.93	319.38	68.28	311.21
819	829	-0.28015D 01	0.36694D 03	0.12223D 05	.0101118 .0096843 .0087353	-1.146 -1.542 -2.058	69.48	327.96	64.27	309.73
820	130	-0.74229D 01	0.43143D 03	0.0	.0145491 .0136301 .0124350	-0.279 -0.283 -0.250	72.07	333.94	70.69	310.74
831	814	-0.1451D-03	0.15943D 02	0.0	.0174795 .0164804 .0156780	-0.741 -0.732 -0.723	72.07	329.55	70.11	310.83
832	564	-0.45924D 00	0.14868D 02	0.72448D 04	.0189626 .0183153 .0177131	-0.351 -0.325 -0.302	67.42	323.55	70.11	310.83
833	322	-0.16865D 01	0.20281D 03	0.0	.0174114 .0168150 .0161822	-0.359 -0.347 -0.349	60.76	314.88	63.61	309.22
834	322	-0.87046D 01	0.24702D 03	0.10251D 05	.0131745 .0124065 .0114651	0.561 -0.136 -0.720	64.37	318.93	61.46	312.75
835	19	-0.87046D 01	0.11219D 04	0.32334D 05	.0074941 .0062059 .0052317	-0.100 -0.726 -0.763	71.67	336.10	68.96	309.22
845	120	-0.14323D 00	0.57291D 01	0.0	.0196115 .0188878 .0182469	-0.681 -0.726 -0.763	71.12	336.96	71.63	304.34
846	638	-0.75023D 00	0.56796D 02	0.30750D 04	.0179464 .0173551 .0167565	-0.314 -0.205 -0.072	68.83	326.48	67.53	306.99
847	643	-0.56285D 01	0.61003D 03	0.13523D 05	.0097448 .0090708 .0082287	0.924 -0.322 -0.028	69.26	328.25	63.50	309.33
848	536	-0.18534D 01	0.28852D 03	0.0	.0145252 .0136239 .0129198	-1.447 -1.312 -1.205	72.06	333.54	69.87	306.46
849	739	-0.43821D 01	0.36532D 03	0.0	.0177537 .0167180 .0158937	-0.542 -0.505 -0.471	70.94	331.01	72.06	308.93
875	596	-0.85554D 00	0.12967D 02	0.57408D 03	.0190573 .0186008 .0177946	-0.425 -0.344 -0.264	67.13	325.82	70.39	310.20
876	767	-0.32453D 01	0.86909D 02	0.64796D 04	.0174939 .0168998 .0162738	-0.498 -0.374 -0.224	61.15	315.43	64.32	308.84
877	233	-0.82450D 00	0.15340D 03	0.76047D 03	.0082827 .0075312 .0066174	-0.117 -0.096 -0.066	63.11	316.89	61.05	312.84
878	159	-0.90700D 01	0.15173D 02	0.0	.0137045 .0123123 .0103122	-0.782 -1.409 -1.506	71.66	330.69	68.84	309.46
888	89	-0.20636D 00	0.25159D 02	0.16286D 05	.0200931 .0187710 .0177768	-0.120 -0.677 -0.652	63.11	316.89	61.05	312.84
889	640	-0.60747D 00	0.39645D 01	0.0	.0078367 .0171040 .0164581	-0.512 -0.508 -0.505	71.66	330.69	71.88	309.65
890	690	-0.41535D 00	0.53450D 01	0.62137D 04	.0179916 .0173995 .0168026	-0.454 -0.292 -0.100	68.45	329.15	61.69	314.58
891	575	-0.25421D 01	0.36084D 01	0.0	.0100338 .0093656 .0085934	-0.459 -0.629 -0.635	63.59	318.20	61.69	314.58
1017	46	-0.11841D 01	0.26312D 02	0.0	.0244385 .0211048 .0201037	-1.245 -1.562 -1.814	71.87	327.74	71.76	311.72
1018	548	-0.15622D 01	0.75891D 03	0.30819D 05	.0196764 .0189405 .0182930	-0.735 -0.722 -0.708	68.60	328.75	67.50	308.68
1019	640	-0.38735D 00	0.22805D 02	0.0	.0152476 .0146552 .0140588	-0.021 -0.117 -0.277	64.59	316.82	67.65	307.51
1020	507	-0.2007D 01	0.23625D 03	0.15080D 04	.0100498 .0093837 .0086153	-1.349 -1.007 -0.543	71.09	332.64	66.13	308.07
1021	230	-0.32822D 01	0.31872D 03	0.0	.0145482 .0134756 .0120203	-0.201 -0.275 -0.332	71.09	332.64	66.13	308.07
1032	571	-0.10034D 00	0.12070D 03	0.51847D 04	.0204348 .0195772 .0188589	-0.201 -0.275 -0.332	71.09	332.64	66.13	308.07

Table 3. Summary of Seasat Greenland Orbit Adjustment (Cont.)

REV	NUM PTS	(1)	COEFFICIENTS (2)	(3)	TIME (FRAC OF DAY) AT 310.E 320.E 330.E	ORB ADJ (M) AT 310.E 320.E 330.E	LAT	START LAT	LONG	LAT	END LAT	LONG
1034	803	-0.19847D 01	0.51875D 03	-0.22040D 05	-0.013806	0.0097636	0.090848	69.58	332.32	71.96	308.66	
1035	213	-0.22013D 01	0.33454D 03	0.0	-0.080260	0.0071511	0.060303	65.75	322.12	69.12	309.62	
1117	7	-0.78021D 00	0.75421D 02	-0.25156D 04	-0.0195886	0.0188511	0.082032	68.75	309.39	68.71	309.25	
1148	38	-0.14433D 01	0.1270D 03	0.0	-0.0180136	0.0174211	0.168249	71.18	337.57	71.86	309.57	
1150	325	-0.45994D 01	0.37032D 03	0.0	-0.0146276	0.0135579	0.121075	64.14	318.03	67.88	306.75	
1161	16	-0.13713D 01	0.1293D 02	0.0	-0.0203319	0.0194829	0.187639	71.46	336.67	66.21	308.41	
1162	26	-0.50784D 00	0.61332D 02	0.0	-0.0185274	0.0179139	0.175230	71.43	311.23	71.27	309.38	
1163	11	-0.16474D 01	0.39184D 03	-0.15221D 05	-0.0062457	0.0053920	0.042734	66.29	320.60	69.80	310.47	
1164	298	-0.21405D 01	0.32913D 03	0.0	-0.0104461	0.0098294	0.091512	66.29	320.60	69.80	310.47	
1175	29	-0.14364D 00	0.57560D 01	0.0	-0.0212425	0.0201957	0.193647	64.16	311.26	63.58	309.46	
1176	16	-0.48657D -01	0.2045D 03	-0.92352D 04	-0.0190905	0.0184311	0.178236	70.22	309.04	69.67	305.71	
1179	164	-0.60069D 00	0.83758D 02	0.0	-0.0137312	0.0123772	0.104080	61.57	315.06	64.86	307.86	
1189	139	-0.32708D 00	0.51668D 01	0.0	-0.0224876	0.0211495	0.0201458	63.84	318.87	60.97	313.06	
1190	12	-0.43210D 00	0.3039D 03	-0.17039D 05	-0.0196409	0.0189039	0.182557	69.29	311.99	68.94	310.28	
1191	59	-0.88475D -02	0.53161D 02	0.0	-0.0177201	0.0171276	0.165314	71.96	311.92	71.80	308.31	
1193	334	-0.21994D 01	0.23217D 03	0.0	-0.0146253	0.0135554	0.121046	64.84	316.28	67.13	309.48	
1204	61	-0.20508D 00	0.13846D 03	-0.56283D 04	-0.0203790	0.0195201	0.188012	67.08	311.19	65.95	307.60	
1205	34	-0.10328D 00	0.22410D 02	0.0	-0.0185328	0.0179194	0.173285	71.43	311.24	71.24	309.04	
1206	19	-0.64518D 00	0.28115D 03	-0.14540D 05	-0.0103584	0.0097417	0.006634	71.83	311.87	72.04	305.91	
1207	148	-0.11394D 01	0.19044D 03	0.0	-0.0662596	0.053859	0.042671	66.11	319.59	69.16	309.50	
1218	40	-0.14210D 01	0.61006D 02	0.0	-0.0212926	0.0202459	0.194151	64.39	311.79	63.53	309.78	
1219	18	-0.10675D 01	0.17309D 03	-0.51956D 04	-0.0190818	0.0184225	0.178150	70.56	311.47	70.22	309.04	
1220	90	-0.51395D 01	0.55034D 03	-0.14600D 05	-0.0175168	0.0169233	0.162992	72.06	312.21	72.01	305.51	
1221	269	-0.35746D 00	0.80866D 02	-0.63032D 03	-0.081367	0.0073900	0.004845	67.23	325.87	67.58	309.22	
1222	129	-0.18888D 01	0.11455D 03	0.0	-0.0137512	0.0123769	0.104072	61.49	315.21	64.85	307.89	
1232	145	-0.51324D 01	0.22342D 03	0.0	-0.0224790	0.0211412	0.013377	63.27	317.58	60.96	313.04	
1234	32	-0.32172D 01	0.21193D 03	0.0	-0.0180161	0.0174237	0.168274	71.19	317.49	71.60	305.10	
1235	13	-0.75488D -01	0.24521D 03	-0.11576D 05	-0.020146	0.013448	0.005824	71.39	310.11	71.44	309.52	
1236	314	-0.24657D 01	0.34476D 03	0.0	-0.0146159	0.0135458	0.0150947	63.92	312.52	67.41	308.47	
1248	47	-0.39966D 01	0.65229D 03	0.0	-0.0185311	0.0179177	0.173267	71.53	312.37	71.25	309.10	
1249	286	-0.26185D 01	0.37666D 03	-0.22336D 05	-0.0103975	0.0097808	0.091024	71.80	312.53	71.86	311.29	
1250	28	-0.44328D 00	0.80509D 02	0.0	-0.062554	0.053815	0.042626	66.47	320.03	68.88	310.86	
1264	172	-0.12252D 01	0.19511D 03	-0.30894D 03	-0.0213306	0.0202812	0.194533	64.59	312.29	63.43	309.56	
1265	125	-0.75422D 00	0.56911D 02	0.0	-0.083339	0.075812	0.066815	67.22	325.93	70.60	309.08	
1275	125	-0.29864D 01	0.97989D 02	0.0	-0.0137402	0.0123636	0.103955	60.91	316.26	64.49	308.79	
1276	24	-0.48442D 00	0.32024D 03	0.0	-0.0224852	0.0211477	0.0201443	63.86	318.90	60.97	313.05	
1278	21	-0.14925D 01	0.24132D 03	0.0	-0.0197086	0.0189717	0.183236	69.48	312.98	69.00	310.57	
1279	342	-0.42733D 01	0.35410D 03	0.0	-0.0100660	0.0093806	0.086132	71.33	310.86	71.44	309.53	
1291	3	-0.10606D 01	0.67751D 02	0.0	-0.0146153	0.0139471	0.120937	64.16	317.97	67.95	306.45	
1293	207	-0.21656D 01	0.33297D 03	0.0	-0.0185308	0.015762	0.173265	71.88	335.98	71.88	335.91	
1305	4	-0.19944D 01	0.15882D 03	-0.27563D 04	-0.062230	0.053491	0.042300	66.63	319.51	67.97	314.75	
1306	29	-0.60975D 01	0.60452D 03	-0.15038D 05	-0.0175182	0.0169246	0.163005	72.07	335.82	72.07	335.73	
1308	130	-0.33186D 01	0.23309D 03	0.0	-0.0137437	0.0123689	0.103983	60.73	316.58	64.30	309.25	
1318	88	-0.39372D 01	0.19557D 03	0.0	-0.0274794	0.0211470	0.013388	63.71	318.56	61.94	314.84	
1320	4	-0.21060D 00	0.17210D 03	0.0	-0.0180136	0.0174212	0.168249	71.26	336.74	71.32	336.08	
1321	12	-0.95465D 00	0.14361D 03	-0.27568D 04	-0.0096629	0.0092375	0.085300	68.44	329.53	64.44	304.25	
1322	54	-0.54835D 01	0.44448D 03	0.0	-0.0146240	0.0135536	0.121021	64.44	317.27	67.91	306.59	
1333	5	-0.15761D 01	0.13343D 03	-0.99328D 04	-0.0064348	0.0195762	0.188574	66.50	309.58	66.39	308.90	
1336	174	-0.24794D 01	0.44092D 03	0.0	-0.061807	0.055067	0.041875	66.57	319.69	68.86	305.68	
1349	27	-0.82139D 00	0.89878D 02	-0.46636D 04	-0.0175147	0.016912	0.162970	72.07	309.53	72.03	306.50	
1351	102	-0.24735D 01	0.17128D 03	0.0	-0.0137396	0.0123647	0.103940	60.75	316.52	64.44	308.91	
1361	83	-0.60358D 00	0.36230D -01	0.0	-0.0224811	0.0211437	0.0201406	63.62	318.35	60.83	312.79	
1365	239	-0.32736D 01	0.28650D 03	0.0	-0.0146226	0.0135522	0.121005	64.43	317.30	66.11	312.75	
1376	14	-0.57034D 00	0.10668D 03	-0.38766D 04	-0.0204367	0.0195781	0.188594	71.44	336.42	66.51	309.28	
1377	3	-0.14361D 01	0.70541D 02	0.0	-0.0185271	0.0179137	0.173228	71.88	335.98			

Table 3. Summary of Seasat Greenland Orbit Adjustment (Cont.)

REV	NUM PTS	(1)	COEFFICIENTS (2)	(3)	TIME (FRAC OF DAY) AT 310.E 320.E 330.E	ORB ADJ (M) AT 310.E 320.E 330.E	START LAT LON	END LAT LON
1378	9	-0.11427D 01	0.34356D 03	-0.16952D 05	.0094309 .0088142 .0081358	0.590 0.568 0.530	72.05 304.95	72.05 304.68
1379	290	-0.17168D 01	0.21410D 03	0.0	.0061957 .0053217 .0042024	-0.390 -0.577 -0.817	66.50 320.53	69.02 305.29
1390	13	-0.37144D 01	0.94408D 03	-0.35734D 05	.0213304 .0202841 .0194535	0.165 0.733 1.128	63.58 309.44	63.59 309.23
1391	21	-0.15918D 01	0.13203D 03	-0.26130D 04	.0190881 .0184288 .0178214	-0.024 -0.046 -0.069	72.07 306.31	69.62 305.36
1392	11	-0.16143D 01	0.19102D 03	0.0	.0175182 .0169246 .0163005	-0.190 -0.175 -0.165	72.07 309.89	72.02 305.85
1394	162	-0.32083D 01	0.20303D 03	-0.62624D 04	.0137462 .0123713 .0104006	-0.432 -0.709 -1.108	60.74 316.55	64.77 308.07
1405	2	-0.77553D 00	-0.17995D 02	0.25240D 04	.0197086 .0189718 .0183237	-0.150 -0.208 -0.258	71.88 304.95	68.15 306.81
1406	1	-0.23411D 01	0.18187D 03	0.0	.0180110 .0174185 .0168223	0.935 0.827 0.718	71.59 304.90	71.59 304.90
1419	10	-0.14899D 01	-0.10068D 02	0.32367D 04	.0204437 .0195851 .0188663	-0.343 -0.446 -0.528	66.57 309.49	65.87 307.35
1421	11	-0.22741D 01	0.48265D 03	-0.17976D 05	.0103906 .0097738 .0090954	0.800 0.726 0.629	69.24 334.17	69.27 334.03
1422	199	-0.16660D 01	0.27504D 03	0.0	.0062124 .0053385 .0042193	0.043 -0.198 -0.505	66.50 320.55	67.96 314.77
1434	2	-0.10974D 00	0.10322D 03	-0.46384D 04	.0190829 .0184236 .0173161	0.171 0.218 0.257	72.07 335.71	69.66 305.59
1435	20	-0.22110D 00	0.14817D 03	-0.76433D 04	.0175116 .0169181 .0162940	0.030 0.098 0.164	72.07 309.96	72.01 305.45
1437	99	-0.96844D 00	0.76918D 02	0.0	.0137407 .0123660 .0103955	-0.108 0.003 -0.149	61.13 315.86	64.74 308.15
1447	36	-0.13355D 01	0.40222D 02	0.0	.0224820 .0211445 .0201413	-0.431 -0.485 -0.525	63.68 318.49	62.16 315.27
1449	8	-0.14213D 01	0.11850D 03	0.0	.0180139 .0174215 .0168253	0.713 0.643 0.572	71.31 336.19	71.32 336.07
1464	7	-0.22649D 01	0.43998D 03	-0.18174D 05	.0102700 .0096533 .0089749	0.337 0.289 0.220	69.26 334.10	69.28 334.01
1465	210	-0.20475D 01	0.27582D 03	0.0	.0062213 .0053475 .0042284	-0.332 -0.573 -0.881	66.64 319.49	69.82 305.88
1476	17	-0.58678D 01	0.10511D 04	-0.40450D 05	.0213366 .0202901 .0194594	0.145 0.807 1.269	70.51 336.16	63.17 308.98
1477	23	-0.16337D 01	0.85370D 02	0.12195D 03	.0190812 .0184219 .0178144	0.040 -0.020 -0.074	72.07 310.10	70.06 308.02
1478	21	-0.18544D 01	0.12093D 02	-0.29277D 04	.0175200 .0169265 .0163024	-0.634 -0.646 -0.661	72.07 310.10	72.02 305.76
1490	70	-0.20399D 01	0.91879D 02	0.0	.0224781 .0211403 .0201369	0.025 -0.098 -0.190	63.69 318.50	61.94 314.85
1491	14	-0.16715D 01	0.44959D 02	0.92859D 02	.0197039 .0189669 .0183188	-0.750 -0.785 -0.817	71.88 335.00	68.87 309.95
1492	18	-0.36589D 01	0.24738D 03	0.0	.0159736 .0153811 .0147849	0.293 0.146 -0.001	71.25 336.79	71.62 305.29
1493	5	-0.98603D 00	0.39922D 02	-0.13840D 04	.0099385 .0092731 .0085058	-0.726 -0.735 -0.747	68.48 329.38	68.50 329.29

Table 4. Corrections To Seasat Ice Data Records

CORRECTION ADJUSTMENT	VALUE OR RANGE	MANNER IN WHICH APPLIED		SECTION IN WHICH DOCUMENTED
		TIME	SURFACE HEIGHT	
RETRACKING CORRECTION accounts for lag in tracker response	$-15\text{m} < \Delta H_{\text{RET}} < 15\text{m}$	N/A	(-)	2.1
TIME BIAS accounts for track mode correction	$-7.9451 \times 10^{-2} \text{ s}$	(+)	N/A	2.2.1
SIGNAL TRAVEL TIME CORRECTION	$-2.67 \times 10^{-3} \text{ s}$	(+)	N/A	2.2.1
CENTER OF GRAVITY OFFSET adjusts measurement to s/c center of mass	$\sim 6.04 \text{ m}$	N/A	(-)	2.2.2
IONOSPHERIC REFRACTION CORRECTION accounts for signal delay	$\sim 2\text{--}3 \text{ cm}$	N/A	(+)	2.3.1
TROPOSPHERIC REFRACTION CORRECTION accounts for signal delay	$\sim 1.5\text{--}2.5 \text{ m}$	N/A	(+)	2.3.2
SOLID TIDE removal	$\sim 2\text{--}10 \text{ cm.}$	N/A	(-)	2.4
ORBIT ADJUSTMENT reduces orbit error and references the data to a mean ocean surface	$3\text{m} \leq \Delta H_{\text{ORB}} \leq 3\text{m}$	N/A	(-)	2.5
SLOPE CORRECTION accounts for signal being returned from closest point within satellite footprint	$0\text{m} \leq \Delta H_{\text{SLOPE}} < 80\text{m}$	N/A	(-)	2.6

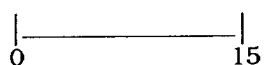


Table 5. Waveform Data Record Description

General Characteristics:

Record Format - variable  
Record Size (bytes) - 170 + 4 for IBM record control word  
Blocksize (bytes) - 31842 + 4 for IBM block control word

<u>Bytes</u>	<u>FORTTRAN Variable Type</u>	<u>Description</u>
1-8	R*8	Fraction of day past midnight from sensor data record
9-16	R*8	Altimeter range measurement in meters from sensor data record
17-20	R*4	Satellite latitude in degrees from sensor data record
21-24	R*4	Satellite east longitude in degrees from sensor data record
25-28	R*4	Altitude error $\Delta h$ in meters
29-32	R*4	Altitude rate error $\Delta \dot{h}$ in meters/sec
33-36	I*4	Modified Julian Date of observation from sensor data record
37-38	I*2	Significant wave height ( $H_{1/3}$ ) in cm.
39-40	I*2	Automatic Gain Control (AGC) in dB
41-166	I*2	Waveform counts
167-168	I*2	Word indicating original data flags



<u>Bits</u>	<u>Value</u>	<u>Description</u>
0-10		Unused
11	1	Not in track mode
12	1	Chirp/cw
13	1	Altimeter error status
14	1	Reacquisition
15	1	Acq/Trk

Table 5. Waveform Data Record Description (Cont.)

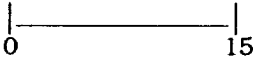
<u>Bytes</u>	<u>FORTTRAN Variable Type</u>	<u>Description</u>
169-170	I*2	Retracking status word
		
<u>Bits</u>	<u>Value</u>	<u>Description</u>
0		Unused
1	0	Gains and offsets were not applied to waveform counts in plots and in determining $\beta$ parameters
	1	Gains and offsets were applied to waveform counts in plots and in determining $\beta$ parameters
2	0	Specular test not performed or waveform not specularly shaped
	1	Waveform determined to be specularly shaped
3	0	Status flag from SDR less than or equal to one
	1	Status flag from SDR greater than one
4	0	Waveform not specularly retracked
	1	Waveform specularly retracked
5	0	Gains and offsets not applied to waveform count values on WDR's
	1	Gains and offsets applied to waveform count values on WDR's
6	0	For double waveforms the retracking correction is not calculated from a weighted average of the two leading edges
	1	For double waveforms the retracking correction is calculated from a weighted average of the two leading edges

Table 5. Waveform Data Record Description

<u>Bytes</u>	<u>FORTTRAN Variable Type</u>	<u>Description</u>		
169-170 (cont.)	applies to water data	<u>Bits</u>	<u>Value</u>	<u>Description</u>
		7	0	No problem with leading edge definition of m
			1	Waveform not defined well enough to filter, no leading edges or too many leading edges
		8	0	No problem retracking
			1	Problem retracking
		9	0	Timing bias was not applied to time tag
			1	Timing bias applied to time tag
		10	0	Waveform not retracked
			1	Waveform retracked
		11	0	Whole edge retracked
			1	Leading edge retracked
		12	0	Ht correction not applied due to $\ddot{h}$
			1	Ht correction applied due to $\ddot{h}$
		13	0	Attitude seastate correction not applied to h
			1	Attitude seastate correction applied to h
		14-15	0	Tracking mode 1
			1	Tracking mode 2
			2	Tracking mode 3
			3	Tracking mode 4



Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)			
			146( 7)	228( 20)	634( 11)	716( 1)
251	39	62.80 310.00	146( 13)	271( 19)	515( 25)	677( 5)
252	113	62.80 311.00	1179( 4)	1222( 4)	1265( 6)	1308( 3)
			1437( 1)			
253	302	62.80 312.00	189( 5)	271( 17)	515( 5)	558( 12)
			878( 9)	1179( 44)	1222( 20)	1265( 6)
			1394( 46)	1437( 58)		
254	129	62.80 313.00	189( 1)	232( 33)	476( 16)	558( 33)
255	109	62.80 314.00	232( 3)	476( 2)	519( 13)	601( 67)
256	54	62.80 315.00	156( 5)	275( 17)	519( 2)	644( 16)
257	87	62.80 316.00	156( 2)	400( 6)	888( 14)	1017( 10)
			1275( 2)	1318( 5)	1447( 7)	1490( 2)
258	50	62.80 317.00	1017( 1)	1189( 4)	1232( 10)	1318( 4)
			1490( 17)			
290	92	63.20 309.00	429( 30)	634( 1)	673( 7)	874( 3)
			1261( 10)	1390( 13)	1476( 14)	1175( 10)
291	66	63.20 310.00	228( 18)	429( 2)	472( 14)	634( 2)
			1222( 2)	1265( 4)		
292	168	63.20 311.00	189( 9)	228( 13)	472( 14)	677( 19)
			1179( 35)	1222( 41)	1265( 22)	515( 20)
293	124	63.20 312.00	232( 1)	271( 45)	476( 7)	519( 1)
294	128	63.20 313.00	232( 25)	271( 7)	476( 5)	519( 1)
			759( 8)			
295	267	63.20 314.00	275( 38)	519( 55)	558( 39)	601( 5)
296	138	63.20 315.00	275( 1)	562( 52)	601( 55)	763( 11)
297	2	63.20 316.00	400( 1)	644( 1)		
298	84	63.20 317.00	156( 2)	644( 11)	1189( 3)	1232( 12)
			1361( 12)	1447( 4)	1490( 14)	1275( 15)
299	36	63.20 318.00	1017( 5)	1189( 1)	1275( 14)	1318( 1)
			1490( 2)			
329	2	63.60 308.00	630( 2)			
330	18	63.60 309.00	630( 5)			
331	80	63.60 310.00	189( 13)	835( 1)	874( 5)	1351( 2)
			1218( 4)	429( 13)	673( 7)	1175( 3)
			1394( 7)	1222( 6)	1261( 3)	1308( 5)
332	47	63.60 311.00	228( 9)	1437( 4)	472( 12)	476( 6)
333	84	63.60 312.00	228( 5)	232( 6)	472( 24)	476( 6)
334	279	63.60 313.00	271( 71)	232( 9)	472( 24)	476( 1)
335	158	63.60 314.00	271( 2)	275( 26)	515( 51)	519( 28)
336	127	63.60 315.00	558( 25)	275( 16)	558( 66)	562( 38)
337	5	63.60 316.00	601( 3)	562( 27)	601( 14)	802( 37)
338	4	63.60 317.00	644( 2)	605( 2)		
339	67	63.60 318.00	644( 4)	648( 2)		
			1447( 3)	1189( 12)	1236( 1)	1318( 1)
369	4	64.00 308.00	146( 3)	1490( 11)	1494( 9)	1275( 20)
370	68	64.00 309.00	630( 10)	831( 3)	1179( 19)	1308( 7)
			1437( 8)			
371	32	64.00 310.00	189( 1)	232( 2)	630( 14)	720( 11)
372	149	64.00 311.00	232( 15)	429( 16)	673( 6)	720( 34)
			1218( 32)	1261( 12)		
373	178	64.00 312.00	228( 15)	275( 22)	472( 20)	519( 38)
374	143	64.00 313.00	228( 20)	275( 12)	472( 2)	519( 4)
			763( 36)			

Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)			
375	266	64.00 314.00	515( 54)	562( 45)	605( 2)	806( 57)
376	131	64.00 315.00	558( 43)	759( 4)	806( 40)	
377	12	64.00 316.00	558( 3)	849( 1)		
378	16	64.00 317.00	691( 3)	1279( 7)		
379	17	64.00 318.00	644( 7)	845( 2)	1150( 1)	1494( 2)
409	70	64.40 308.00	189( 1)	544( 5)	1222( 7)	1351( 2)
410	3	64.40 309.00	1394( 29)	1437( 15)		
411	13	64.40 310.00	587( 3)			
412	99	64.40 311.00	232( 2)	476( 2)	831( 9)	
413	120	64.40 312.00	275( 10)	429( 6)	519( 17)	673( 11)
414	210	64.40 313.00	874( 15)		630( 17)	763( 23)
415	183	64.40 314.00	429( 52)	562( 35)	763( 17)	1261( 3)
416	189	64.40 315.00	228( 23)	472( 8)	562( 53)	806( 55)
417	120	64.40 316.00	228( 30)	271( 1)	472( 10)	605( 62)
418	13	64.40 317.00	806( 43)			716( 20)
419	7	64.40 318.00	160( 20)	271( 35)	515( 11)	
450	5	64.80 307.20	160( 44)	558( 19)	648( 44)	849( 48)
451	11	64.80 308.00	1236( 2)	1322( 4)	691( 1)	1150( 2)
452	5	64.80 308.80	802( 1)	1322( 3)	1494( 2)	
453	3	64.80 309.60	601( 2)	1322( 5)	1494( 8)	
454	33	64.80 310.40	1179( 3)	802( 3)		
455	45	64.80 311.20	544( 5)	544( 10)		
456	91	64.80 312.00	587( 3)			
457	230	64.80 312.80	275( 1)	519( 10)	587( 13)	
458	31	64.80 313.60	630( 15)	831( 30)	763( 9)	
459	217	64.80 314.40	562( 39)	630( 3)	874( 35)	
460	151	64.80 315.20	429( 58)	605( 31)	806( 61)	
461	77	64.80 316.00	429( 10)	605( 10)		
462	12	64.80 316.80	160( 18)	228( 38)	648( 53)	849( 52)
463	21	64.80 317.60	160( 57)	648( 20)	1021( 2)	1193( 24)
500	30	65.10 307.20	1236( 17)	1279( 11)		
501	1	65.10 308.00	1322( 8)	1365( 14)		
502	14	65.10 308.80	558( 11)	691( 1)		
503	19	65.10 309.60	558( 12)	802( 9)		
504	36	65.10 310.40	232( 15)	257( 10)	1150( 28)	1236( 3)
505	68	65.10 311.20	544( 1)	720( 5)		
506	73	65.10 312.00	275( 3)	763( 2)	788( 5)	
507	296	65.10 312.80	562( 24)	763( 3)	788( 11)	
508	367	65.10 313.60	605( 11)	831( 5)		
509	254	65.10 314.40	605( 35)	806( 30)	831( 23)	
510	9	65.10 315.20	605( 18)	673( 32)		
511	34	65.10 316.00	160( 58)	429( 64)	673( 64)	874( 39)
512	5	65.10 316.80	1150( 35)	429( 11)	648( 23)	1021( 44)
513	22	65.10 317.60	472( 59)	1193( 35)	1279( 37)	1494( 34)
514		65.10 318.40	1236( 31)	691( 3)	1279( 12)	1193( 26)
			228( 1)	1279( 23)	1494( 29)	
			490( 17)	691( 8)		
			558( 2)	759( 17)		
			289( 2)	777( 10)		

Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER	PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)			
550	4		65.40 307.20	720( 4)	501( 1)		
551	4		65.40 308.00	257( 3)	275( 9)	519( 6)	
552	26		65.40 308.80	257( 9)	562( 8)		
553	10		65.40 309.60	544( 2)	788( 12)	806( 1)	
554	59		65.40 310.40	544( 10)	788( 8)	806( 18)	
555	51		65.40 311.20	587( 1)	605( 24)		
556	56		65.40 312.00	587( 12)	605( 34)	831( 56)	849( 24)
557	165		65.40 312.80	160( 22)	630( 12)	648( 51)	874( 34)
558	346		65.40 313.60	160( 16)	648( 22)	673( 5)	1365( 40)
				1150( 39)	1193( 38)	1279( 39)	1021( 26)
				429( 59)	673( 72)	691( 62)	1494( 38)
559	475		65.40 314.40	1193( 37)	1236( 36)	1365( 35)	1150( 34)
				429( 14)	1279( 36)		1494( 37)
560	32		65.40 315.20	228( 37)	716( 14)		
561	92		65.40 316.00	228( 8)	490( 12)	716( 17)	
562	16		65.40 316.80	228( 8)	515( 1)		
563	33		65.40 317.60	289( 5)	759( 15)	777( 7)	
564	38		65.40 318.40	289( 10)	777( 8)		
566	3		65.40 320.00	802( 3)	558( 20)		
600	12		65.70 307.20	519( 2)	1204( 7)	1419( 3)	
601	7		65.70 308.00	275( 3)	519( 1)	763( 3)	
603	16		65.70 309.60	257( 16)	605( 26)	806( 33)	
604	70		65.70 310.40	544( 15)	544( 6)		
605	53		65.70 311.20	160( 7)	788( 38)		
606	105		65.70 312.00	160( 39)	587( 43)	648( 12)	849( 15)
607	391		65.70 312.80	1150( 42)	587( 32)	648( 14)	831( 12)
				630( 8)	1193( 46)	1279( 46)	1021( 21)
608	313		65.70 313.60	1236( 30)	691( 39)	1021( 22)	1365( 45)
				490( 2)	1279( 30)	1494( 32)	1150( 30)
609	50		65.70 314.40	429( 42)	630( 18)	691( 4)	
610	173		65.70 315.20	429( 17)	673( 2)	874( 24)	
611	25		65.70 316.00	228( 5)	490( 33)	691( 4)	
612	40		65.70 316.80	777( 7)	673( 4)	716( 13)	
613	7		65.70 317.60	271( 2)	472( 4)		
614	64		65.70 318.40	820( 3)	515( 13)	759( 46)	
615	3		65.70 319.20	558( 8)	576( 1)		
616	8		65.70 320.00	1035( 2)			
618	2		65.70 321.59	1204( 7)	1161( 9)	1204( 8)	
650	11		66.00 307.20	562( 6)	1419( 4)		
651	27		66.00 308.00	562( 3)	1032( 4)		
652	10		66.00 308.80	501( 2)	806( 7)		
653	25		66.00 309.60	257( 13)	605( 17)	806( 6)	
654	37		66.00 310.40	160( 3)	501( 4)	648( 46)	849( 42)
655	103		66.00 311.20	160( 9)	544( 5)	691( 5)	788( 34)
656	212		66.00 312.00	1021( 29)	544( 24)	648( 11)	1279( 12)
				1494( 7)	1150( 18)	1236( 14)	1365( 1)
657	226		66.00 312.80	587( 35)	691( 22)	1150( 26)	1236( 26)
				1279( 24)	788( 25)		
658	54		66.00 313.60	490( 10)	1494( 26)		
659	167		66.00 314.40	490( 47)	831( 6)		
660	44		66.00 315.20	630( 25)	831( 70)		
661	196		66.00 316.00	289( 38)	831( 4)	777( 4)	874( 46)
662	34		66.00 316.80	429( 25)	673( 63)		
				576( 8)	673( 1)		

Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER	PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)			
663	58		66.00 317.60	228( 3)	472( 26)	576( 2)	716( 27)
664	46		66.00 318.40	228( 5)	472( 1)	515( 6)	820( 4)
665	109		66.00 319.20	271( 4)	515( 69)	759( 36)	716( 5)
666	28		66.00 320.00	271( 1)	418( 9)	515( 1)	1164( 1)
668	2		66.00 321.59	601( 2)			1422( 1)
699	15		66.30 306.40	275( 9)	519( 2)	763( 4)	
700	7		66.30 307.20	562( 7)			
701	6		66.30 308.00	562( 6)			
702	29		66.30 308.80	806( 6)	1032( 2)	1204( 13)	1376( 1)
703	1		66.30 309.60	849( 1)			1419( 3)
704	23		66.30 310.40	160( 9)	648( 1)	849( 13)	
705	95		66.30 311.20	160( 4)	257( 3)	501( 47)	1021( 4)
				1193( 11)	1236( 1)	1279( 18)	1150( 4)
				257( 1)	501( 8)	544( 12)	
706	80		66.30 312.00	1236( 9)	1279( 9)		691( 21)
				544( 64)	788( 10)		1021( 7)
707	74		66.30 312.80	490( 20)	587( 30)	788( 27)	1150( 13)
708	77		66.30 313.60	289( 14)	587( 47)		
709	61		66.30 314.40	289( 3)			
710	210		66.30 315.20	289( 56)	577( 49)		831( 65)
711	97		66.30 316.00	576( 19)	630( 36)	777( 16)	831( 15)
712	162		66.30 316.80	429( 38)	576( 17)	673( 40)	874( 11)
713	70		66.30 317.60	429( 38)	619( 12)	673( 20)	
714	111		66.30 318.40	472( 46)	619( 3)	716( 62)	
715	115		66.30 319.20	174( 35)	228( 8)	418( 14)	472( 26)
				1164( 1)	1250( 5)	1336( 2)	662( 6)
				418( 1)	515( 15)	759( 4)	716( 17)
716	30		66.30 320.00	418( 1)			1379( 1)
717	3		66.30 320.79	759( 3)			1250( 3)
719	12		66.30 322.39	802( 12)			
720	6		66.30 323.19	547( 6)	573( 5)		
749	6		66.60 306.40	562( 1)			
750	13		66.60 307.20	806( 13)			
751	10		66.60 308.00	616( 10)			
752	1		66.60 308.80	1333( 1)			
753	34		66.60 309.60	849( 6)	1204( 20)	1279( 8)	
754	16		66.60 310.40	691( 3)	1032( 5)	1150( 3)	1204( 5)
756	43		66.60 312.00	257( 7)	490( 12)	501( 24)	
757	58		66.60 312.80	257( 28)	490( 7)	501( 19)	544( 4)
758	116		66.60 313.60	289( 35)	544( 66)	777( 3)	788( 12)
759	176		66.60 314.40	289( 41)	544( 8)	587( 17)	788( 63)
760	126		66.60 315.20	576( 63)	587( 63)		
761	125		66.60 316.00	576( 16)	630( 30)	820( 27)	831( 52)
762	108		66.60 316.80	619( 33)	630( 50)	831( 23)	874( 2)
763	114		66.60 317.60	418( 2)	429( 26)	619( 1)	662( 9)
764	57		66.60 318.40	174( 6)	418( 4)	429( 1)	673( 40)
				1379( 2)	1465( 2)		673( 31)
				174( 25)	228( 8)	716( 2)	874( 36)
765	51		66.60 319.20	1293( 3)	1379( 1)	1422( 4)	1336( 3)
				228( 31)	472( 11)	716( 2)	1207( 2)
766	44		66.60 320.00	759( 2)			1250( 1)
767	2		66.60 320.79	759( 2)			
768	11		66.60 321.59	759( 11)			
770	11		66.60 323.19	791( 4)			
771	5		66.60 323.99	601( 5)			
772	1		66.60 324.79	590( 1)	802( 7)		



Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)			
799	6	66.90 306.40	573( 3)	605( 3)		
800	32	66.90 307.20	573( 32)			
801	6	66.90 308.00	616( 4)	648( 2)		
802	43	66.90 308.80	616( 1)	1021( 10)	1150( 7)	1193( 7)
803	25	66.90 309.60	659( 6)	1021( 7)	1150( 4)	1193( 2)
804	35	66.90 310.40	659( 9)	691( 5)	1032( 20)	1204( 1)
805	38	66.90 311.20	490( 16)	1032( 18)	1161( 4)	
806	26	66.90 312.00	490( 26)			
807	137	66.90 312.80	257( 24)	289( 48)	501( 38)	777( 27)
808	132	66.90 313.60	257( 58)	289( 29)	501( 9)	576( 10)
809	82	66.90 314.40	544( 55)	576( 25)	788( 2)	
810	152	66.90 315.20	544( 29)	576( 4)	587( 2)	619( 27)
811	148	66.90 316.00	587( 62)	619( 53)	788( 13)	820( 20)
812	117	66.90 316.80	174( 10)	418( 17)	587( 17)	630( 14)
			1035( 4)			
813	361	66.90 317.60	174( 49)	418( 5)	630( 65)	662( 45)
			1207( 2)	1250( 55)	1293( 13)	1379( 66)
814	52	66.90 318.40	630( 5)	673( 12)	874( 17)	1379( 18)
815	130	66.90 319.20	429( 45)	461( 2)	673( 51)	874( 32)
816	21	66.90 320.00	228( 2)	260( 6)	472( 9)	504( 1)
817	51	66.90 320.79	228( 12)	260( 2)	472( 28)	716( 9)
818	9	66.90 321.59	515( 4)	547( 5)		
819	16	66.90 322.39	271( 10)	590( 2)	759( 4)	
820	6	66.90 323.19	558( 6)			
821	3	66.90 324.79	601( 2)	802( 1)		
822	8	66.90 325.59	877( 8)			
823	7	66.90 326.39	530( 7)			
824	6	67.20 307.00	530( 6)			
825	5	67.20 307.50	849( 5)			
826	15	67.20 308.00	573( 15)			
827	12	67.20 308.50	1150( 1)	1279( 1)	1322( 10)	
828	4	67.20 309.00	1494( 4)			
829	17	67.20 311.00	490( 5)	659( 12)		
830	16	67.20 311.50	659( 7)	1032( 8)	1161( 1)	
831	19	67.20 312.00	289( 7)	1032( 12)		
832	66	67.20 312.50	289( 31)	777( 35)		
833	19	67.20 313.00	777( 19)			
834	38	67.20 313.50	576( 38)			
835	59	67.20 314.00	257( 15)	501( 31)	576( 13)	820( 4)
836	45	67.20 314.50	257( 15)	501( 25)	619( 1)	
837	52	67.20 315.00	257( 1)	619( 34)	820( 17)	
838	45	67.20 315.50	544( 32)	619( 13)		
839	54	67.20 316.00	544( 22)	662( 7)	788( 25)	
840	184	67.20 316.50	174( 18)	418( 29)	662( 38)	1035( 13)
			1250( 8)	1293( 9)	1379( 9)	1422( 8)
841	199	67.20 317.00	174( 18)	418( 2)	587( 25)	1422( 17)
			1250( 15)	1293( 25)	1336( 6)	1422( 23)
842	62	67.20 317.50	587( 17)	1035( 4)	1207( 3)	1293( 8)
			1422( 9)	1465( 4)		
843	68	67.20 318.00	461( 39)	630( 3)	831( 26)	
844	74	67.20 318.50	461( 2)	630( 41)	831( 31)	
845	12	67.20 319.00	630( 12)			
846	49	67.20 319.50	260( 10)	673( 8)	874( 31)	

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Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)		
1019	10	67.60 309.00	774( 10)	573( 4)	
1020	5	67.60 309.50	490( 1)		
1021	7	67.60 310.00	573( 7)		
1023	40	67.60 311.00	289( 2)	777( 20)	
1024	18	67.60 311.50	616( 1)	616( 18)	
1025	5	67.60 312.00	576( 5)	777( 17)	
1026	7	67.60 312.50	576( 2)	659( 3)	1032( 2)
1027	19	67.60 313.00	619( 1)	659( 12)	1032( 6)
1028	5	67.60 313.50	619( 3)	1032( 2)	
1029	17	67.60 314.00	619( 17)		
1030	6	67.60 314.50	662( 6)		
1031	137	67.60 315.00	174( 17)		
1032	454	67.60 315.50	1336( 8)	418( 32)	1164( 6)
			174( 39)	1379( 8)	1422( 7)
			1164( 39)	257( 18)	1458( 6)
			1422( 39)	1207( 20)	501( 35)
			174( 3)	1465( 37)	1293( 39)
1033	157	67.60 316.00	1250( 13)	257( 39)	1035( 8)
			461( 37)	1293( 12)	1336( 14)
1034	37	67.60 316.50	630( 9)	831( 5)	1164( 14)
1035	59	67.60 317.00	590( 24)		1422( 10)
1036	46	67.60 317.50	429( 14)		662( 14)
1037	80	67.60 318.00	429( 21)	587( 4)	1035( 31)
1038	73	67.60 318.50	260( 32)	587( 39)	662( 39)
1039	20	67.60 319.00	547( 6)		1336( 39)
1040	1040	67.60 319.50	547( 31)		
1041	49	67.60 320.00	630( 9)		
1042	9	67.60 320.50	630( 9)		
1043	35	67.60 321.00	590( 24)		
1044	32	67.60 321.50	429( 14)		
1045	43	67.60 322.00	429( 21)		
1046	24	67.60 322.50	472( 4)		
1047	17	67.60 323.00	228( 4)		
1048	4	67.60 323.50	877( 1)		
1049	2	67.60 324.00	1221( 3)		
1053	10	67.60 326.00	1264( 2)		
1093	4	67.80 306.00	231( 10)		
1094	22	67.80 306.50	1279( 4)		
1095	3	67.80 307.00	1150( 1)	1279( 14)	1322( 7)
1097	1	67.80 308.00	1279( 1)	1494( 2)	
1098	1	67.80 308.50	490( 1)		
1099	3	67.80 309.00	490( 1)		
1100	10	67.80 309.50	530( 1)	774( 2)	
1101	7	67.80 310.00	774( 10)		
1102	22	67.80 310.50	573( 7)		
1103	15	67.80 311.00	289( 10)	777( 8)	
1104	7	67.80 311.50	573( 5)		
1105	9	67.80 312.00	576( 4)		
1106	11	67.80 312.50	616( 3)		
1107	37	67.80 313.00	616( 6)		
1108	17	67.80 313.50	820( 3)		
1109	62	67.80 314.00	820( 5)		
1110	217	67.80 314.50	659( 19)	820( 3)	
			619( 15)		
			659( 17)		
			662( 25)		
			418( 29)		
			174( 24)		
			1250( 17)		
			1032( 22)		
			662( 32)		
			1379( 19)		
			1035( 16)		
			1422( 18)		
			1164( 19)		
			1207( 9)		

Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)	REV (NUMBER PTS)	REV (NUMBER PTS)
1111	175	67.80 315.00	174( 16)	418( 7)	1035( 1)
1112	19	67.80 315.50	1293( 18)	1336( 15)	1379( 21)
1113	53	67.80 316.00	461( 19)	501( 14)	501( 39)
1114	79	67.80 316.50	461( 39)	461( 2)	501( 7)
1115	61	67.80 317.00	257( 38)	260( 10)	544( 19)
1116	87	67.80 317.50	257( 22)	504( 29)	544( 8)
1117	57	67.80 318.00	260( 39)	504( 38)	788( 31)
1118	62	67.80 318.50	260( 11)	547( 28)	788( 13)
1119	55	67.80 319.00	544( 3)	587( 10)	788( 13)
1120	25	67.80 319.50	547( 32)	587( 2)	
1121	10	67.80 320.00	587( 23)	791( 2)	
1122	23	67.80 320.50	630( 7)	831( 3)	
1123	26	67.80 321.00	630( 11)	831( 12)	
1124	47	67.80 321.50	633( 2)	834( 8)	874( 16)
1125	56	67.80 322.00	429( 16)	633( 12)	673( 7)
1126	21	67.80 322.50	429( 35)	673( 6)	874( 5)
1127	5	67.80 323.00	429( 4)	877( 2)	877( 8)
1128	5	67.80 323.50	432( 3)	716( 2)	
1131	30	67.80 325.00	231( 4)	271( 1)	
1132	5	67.80 325.50	271( 19)	515( 9)	
1133	5	67.80 326.00	518( 5)	759( 2)	
1134	8	67.80 326.50	274( 1)	558( 3)	
1135	1	67.80 327.00	558( 8)		
1174	1	68.00 306.50	1405( 1)		
1176	1	68.00 307.50	200( 1)		
1177	1	68.00 308.00	490( 1)		
1180	9	68.00 309.50	289( 4)	777( 5)	
1181	31	68.00 310.00	530( 4)	576( 5)	
1182	11	68.00 310.50	286( 2)	576( 5)	777( 17)
1183	13	68.00 311.00	573( 2)	576( 11)	
1184	14	68.00 311.50	573( 14)		
1185	5	68.00 312.00	619( 5)		
1186	13	68.00 312.50	616( 9)	619( 4)	
1187	14	68.00 313.00	418( 1)	616( 2)	
1188	59	68.00 313.50	418( 9)	662( 10)	662( 11)
1189	72	68.00 314.00	174( 3)	418( 15)	1035( 18)
1190	22	68.00 314.50	1250( 12)		659( 10)
1191	8	68.00 315.00	461( 4)	659( 18)	1164( 13)
1192	9	68.00 315.50	461( 6)	1032( 2)	1207( 1)
1193	3	68.00 316.00	461( 9)		1164( 11)
1194	70	68.00 316.50	504( 3)		1035( 7)
1195	89	68.00 317.00	260( 33)	504( 37)	
1196	82	68.00 317.50	257( 16)	260( 28)	501( 30)
1197	43	68.00 318.00	257( 38)	501( 31)	547( 13)
1198	69	68.00 318.50	257( 7)	547( 36)	
1199	65	68.00 319.00	544( 32)	547( 8)	791( 29)
1200	74	68.00 319.50	544( 26)	590( 16)	788( 23)
1201	24	68.00 320.00	587( 2)	590( 38)	788( 34)
1202	16	68.00 320.50	587( 23)	590( 1)	
1203	14	68.00 321.00	587( 8)	834( 8)	
1204	52	68.00 321.50	831( 11)	834( 3)	
1205	64	68.00 322.00	630( 31)	831( 19)	877( 2)
			432( 13)	630( 18)	676( 1)
					877( 9)
					1221( 23)

Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)				
			673( 6)	676( 13)	874( 32)	877( 2)	1221( 9)
1206	79	68.00 322.50	432( 7) 1264( 10)				
1207	72	68.00 323.00	429( 17)				
1208	27	68.00 323.50	231( 3)	673( 20)	874( 28)		
1209	29	68.00 324.00	231( 20)	719( 13)			
1210	8	68.00 324.50	472( 2)	719( 6)			
1212	5	68.00 325.50	515( 5)				
1213	9	68.00 326.00	271( 3)	762( 6)			
1214	6	68.00 326.50	271( 6)				
1215	9	68.00 327.00	777( 9)				
1216	8	68.00 328.00	777( 8)				
1217	8	68.00 329.00	243( 8)				
1218	8	68.00 330.00	576( 2)				
1219	2	68.00 331.00	286( 3)				
1220	8	68.00 331.50	286( 4)	820( 4)			
1221	10	68.00 332.00	286( 1)				
1222	1	68.00 332.50	573( 24)				
1223	24	68.00 333.00	174( 7)				
1224	25	68.00 333.50	1207( 1)				
1225	55	68.00 334.00	174( 1)				
1226	23	68.00 334.50	461( 29)				
1227	41	68.00 335.00	461( 28)				
1228	40	68.00 335.50	659( 33)				
1229	46	68.00 336.00	260( 21)				
1230	75	68.00 336.50	260( 35)				
1231	44	68.00 337.00	260( 4)				
1232	5	68.00 337.50	547( 37)				
1233	37	68.00 338.00	501( 7)				
1234	54	68.00 338.50	257( 30)				
1235	107	68.00 339.00	257( 32)				
1236	89	68.00 339.50	544( 11)				
1237	30	68.00 340.00	544( 37)				
1238	62	68.00 340.50	544( 14)				
1239	61	68.00 341.00	587( 16)				
1240	39	68.00 341.50	587( 32)				
1241	52	68.00 342.00	432( 16)				
1242	36	68.00 342.50	432( 24)				
1243	106	68.00 343.00	475( 4)				
1244	71	68.00 343.50	231( 28)				
1245	85	68.00 344.00	231( 23)				
1246	28	68.00 344.50	429( 5)				
1247	8	68.00 345.00	274( 1)				
1248	10	68.00 345.50	472( 3)				
1249	4	68.00 346.00	805( 4)				
1250	34	68.00 346.50	200( 1)				
1251	4	68.00 347.00	243( 8)				
1252	2	68.00 347.50	243( 9)				
1253	8	68.00 348.00	174( 2)				
1254	22	68.00 348.50	174( 16)				
1255	16	68.00 349.00	174( 3)				
1256	40	68.00 349.50	573( 7)				
1257	20	68.00 350.00					
1258	7	68.00 350.50					
1259		68.00 351.00					
1260		68.00 351.50					
1261		68.00 352.00					
1262		68.00 352.50					
1263		68.00 353.00					
1264		68.00 353.50					
1265		68.00 354.00					
1266		68.00 354.50					
1267		68.00 355.00					
1268		68.00 355.50					
1269		68.00 356.00					
1270		68.00 356.50					
1271		68.00 357.00					
1272		68.00 357.50					
1273		68.00 358.00					
1274		68.00 358.50					
1275		68.00 359.00					
1276		68.00 359.50					
1277		68.00 360.00					
1278		68.00 360.50					
1279		68.00 361.00					
1280		68.00 361.50					
1281		68.00 362.00					
1282		68.00 362.50					
1283		68.00 363.00					
1284		68.00 363.50					
1285		68.00 364.00					
1286		68.00 364.50					
1287		68.00 365.00					
1288		68.00 365.50					
1289		68.00 366.00					
1290		68.00 366.50					
1291		68.00 367.00					
1292		68.00 367.50					
1293		68.00 368.00					
1294		68.00 368.50					
1295		68.00 369.00					
1296		68.00 369.50					
1297		68.00 370.00					
1298		68.00 370.50					
1299		68.00 371.00					
1300		68.00 371.50					
1301		68.00 372.00					
1302		68.00 372.50					
1303		68.00 373.00					
1304		68.00 373.50					
1305		68.00 374.00					
1306		68.00 374.50					
1307		68.00 375.00					
1308		68.00 375.50					
1309		68.00 376.00					
1310		68.00 376.50					
1311		68.00 377.00					
1312		68.00 377.50					
1313		68.00 378.00					
1314		68.00 378.50					
1315		68.00 379.00					
1316		68.00 379.50					
1317		68.00 380.00					
1318		68.00 380.50					
1319		68.00 381.00					
1320		68.00 381.50					
1321		68.00 382.00					
1322		68.00 382.50					
1323		68.00 383.00					
1324		68.00 383.50					
1325		68.00 384.00					
1326		68.00 384.50					
1327		68.00 385.00					
1328		68.00 385.50					
1329		68.00 386.00					
1330		68.00 386.50					
1331		68.00 387.00					
1332		68.00 387.50					
1333		68.00 388.00					
1334		68.00 388.50					
1335		68.00 389.00					
1336		68.00 389.50					
1337		68.00 390.00					
1338		68.00 390.50					
1339		68.00 391.00					
1340		68.00 391.50					
1341		68.00 392.00					
1342		68.00 392.50					
1343		68.00 393.00					
1344		68.00 393.50					
1345		68.00 394.00					
1346		68.00 394.50					
1347		68.00 395.00					

Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)	REV (NUMBER PTS)
1348	5	68.40 313.50	573( 4)	
1349	10	68.40 314.00	616( 9)	
1350	12	68.40 314.50	504( 3)	
1351	65	68.40 315.00	616( 7)	
1352	31	68.40 315.50	504( 22)	
1353	27	68.40 316.00	504( 3)	
1354	63	68.40 316.50	1032( 27)	
1355	34	68.40 317.00	1032( 2)	
1356	43	68.40 317.50	791( 14)	
1357	32	68.40 318.00	590( 32)	
1358	40	68.40 318.50	501( 19)	834( 16)
1359	143	68.40 319.00	501( 36)	633( 35)
1360	53	68.40 319.50	501( 8)	633( 11)
1361	27	68.40 320.00	544( 23)	1221( 1)
1362	106	68.40 320.50	544( 32)	877( 3)
1363	48	68.40 321.00	432( 3)	788( 13)
1364	29	68.40 321.50	587( 27)	676( 8)
1365	94	68.40 322.00	231( 9)	587( 30)
1366	110	68.40 322.50	231( 37)	719( 27)
1367	36	68.40 323.00	231( 9)	831( 14)
1368	33	68.40 323.50	274( 1)	
1369	35	68.40 324.00	274( 34)	
1370	6	68.40 324.50	274( 5)	
1371	9	68.40 325.00	561( 6)	
1372	5	68.40 325.50	561( 5)	
1373	1	68.40 326.00	716( 1)	
1379	23	68.40 329.00	588( 5)	891( 4)
1380	3	68.40 329.50	1321( 3)	1321( 8)
1415	2	68.60 307.00	777( 2)	690( 1)
1416	1	68.60 307.50	777( 1)	891( 4)
1419	9	68.60 309.00	619( 2)	1493( 5)
1421	6	68.60 310.00	200( 2)	
1422	1	68.60 310.50	662( 1)	
1423	25	68.60 311.00	174( 3)	688( 2)
1424	38	68.60 311.50	174( 19)	418( 2)
1425	10	68.60 312.00	286( 5)	1035( 3)
1426	6	68.60 312.50	461( 4)	1250( 2)
1427	33	68.60 313.00	286( 20)	774( 8)
1428	7	68.60 313.50	260( 4)	774( 2)
1429	34	68.60 314.00	260( 4)	
1430	5	68.60 314.50	573( 30)	
1431	35	68.60 315.00	573( 5)	
1432	36	68.60 315.50	547( 9)	616( 26)
1433	44	68.60 316.00	547( 8)	616( 26)
1434	28	68.60 316.50	590( 22)	791( 6)
1435	70	68.60 317.00	590( 36)	791( 4)
1436	7	68.60 317.50	590( 5)	1032( 32)
1437	63	68.60 318.00	633( 27)	
1438	56	68.60 318.50	633( 36)	
1439	25	68.60 319.00	633( 1)	
1440	151	68.60 319.50	257( 15)	501( 28)
1441	165	68.60 320.00	257( 35)	877( 31)
1442	21	68.60 320.50	257( 15)	1221( 26)
			432( 5)	1221( 30)

Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)			
1443	15	68.60 321.00	231( 11)	544( 4)		
1444	69	68.60 321.50	231( 27)	475( 9)	544( 2)	719( 28)
1446	52	68.60 322.50	518( 28)	587( 24)		788( 3)
1447	31	68.60 323.00	518( 5)	587( 25)	762( 1)	
1448	7	68.60 323.50	630( 4)	831( 3)		
1449	21	68.60 324.00	561( 6)	630( 15)		
1450	3	68.60 324.50	630( 3)			
1452	15	68.60 325.50	805( 10)	874( 5)		
1456	4	68.60 327.50	716( 4)			
1458	5	68.60 328.50	271( 1)	1020( 4)		
1459	1	68.60 329.00	515( 1)			
1461	7	68.60 330.00	489( 7)			
1463	2	68.60 331.00	802( 2)			
1465	8	68.60 332.00	776( 8)			
1498	3	68.80 308.50	645( 3)			
1499	17	68.80 309.00	401( 13)	645( 1)	846( 1)	889( 2)
1500	9	68.80 309.50	401( 3)	662( 2)	1491( 4)	
1501	38	68.80 310.00	200( 5)	444( 3)	662( 16)	1190( 5)
1502	47	68.80 310.50	200( 5)	200( 12)	418( 3)	688( 5)
			1164( 7)	1250( 3)		
1503	10	68.80 311.00	200( 10)			
1504	4	68.80 311.50	243( 4)			
1505	5	68.80 312.00	243( 5)			
1506	2	68.80 312.50	243( 2)			
1507	13	68.80 313.00	260( 13)			
1508	34	68.80 313.50	260( 30)	504( 4)		
1509	1	68.80 314.00	774( 1)			
1510	17	68.80 314.50	547( 13)		791( 2)	
1511	12	68.80 315.00	573( 9)	573( 2)		
1512	34	68.80 315.50	590( 12)	791( 3)		
1513	52	68.80 316.00	590( 32)	791( 22)		
1514	23	68.80 316.50	590( 11)	616( 20)		
1515	43	68.80 317.00	633( 1)	616( 7)	834( 5)	
1516	34	68.80 317.50	633( 27)	834( 31)		
1517	54	68.80 318.00	633( 7)	659( 15)	834( 1)	
1518	113	68.80 318.50	432( 17)	659( 24)	1032( 3)	
1519	25	68.80 319.00	432( 35)	676( 23)	877( 2)	1221( 12)
1520	32	68.80 319.50	432( 15)	676( 35)	877( 8)	1221( 35)
1521	103	68.80 320.00	231( 7)	676( 4)	1221( 6)	
1522	73	68.80 320.50	231( 35)	719( 25)		
1523	41	68.80 321.00	231( 23)	257( 21)	475( 3)	719( 12)
1524	63	68.80 321.50	257( 4)	257( 13)	501( 32)	719( 2)
1525	12	68.80 322.00	274( 4)	274( 11)	518( 23)	
1526	17	68.80 322.50	518( 8)	518( 35)	762( 24)	
1527	2	68.80 323.00	561( 17)	544( 3)	788( 1)	
1529	1	68.80 324.00	587( 2)			
1530	10	68.80 324.50	831( 1)			
1531	3	68.80 325.00	630( 5)	831( 5)		
1532	25	68.80 325.50	831( 2)	874( 1)		
1533	4	68.80 326.00	673( 4)	848( 13)	874( 8)	
1534	1	68.80 326.50	673( 2)	874( 1)	891( 1)	
1535	4	68.80 327.00	891( 1)			
1536		68.80 327.50	690( 4)			

Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER	PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)
1537	3		68.80 328.00	228( 3)
1538	1		68.80 328.50	228( 1)
1540	1		68.80 329.50	515( 1)
1541	1		68.80 330.00	271( 1)
1543	20		68.80 331.00	776( 20)
1579	10		69.00 309.00	418( 5)
1580	19		69.00 309.50	601( 2)
1581	3		69.00 310.00	645( 3)
1582	5		69.00 310.50	1276( 5)
1583	21		69.00 311.00	260( 9)
1584	10		69.00 311.50	200( 2)
1585	29		69.00 312.00	200( 11)
1586	11		69.00 312.50	243( 4)
1588	20		69.00 313.50	243( 5)
1589	15		69.00 314.00	286( 8)
1590	13		69.00 314.50	286( 1)
1591	16		69.00 315.00	286( 6)
1592	23		69.00 315.50	834( 4)
1593	41		69.00 316.00	573( 19)
1594	26		69.00 316.50	573( 34)
1595	39		69.00 317.00	616( 3)
1596	77		69.00 317.50	616( 25)
1597	92		69.00 318.00	432( 15)
1598	72		69.00 318.50	432( 33)
1599	92		69.00 319.00	432( 18)
1600	98		69.00 319.50	231( 6)
1601	35		69.00 320.00	231( 32)
1602	34		69.00 320.50	231( 26)
1603	78		69.00 321.00	274( 10)
1604	96		69.00 321.50	274( 34)
1605	48		69.00 322.00	274( 24)
1606	33		69.00 322.50	257( 3)
1607	8		69.00 323.00	561( 33)
1608	3		69.00 323.50	561( 8)
1609	1		69.00 324.00	788( 1)
1611	2		69.00 325.00	848( 2)
1612	16		69.00 325.50	848( 7)
1613	2		69.00 326.00	831( 2)
1614	6		69.00 326.50	630( 2)
1615	3		69.00 327.00	446( 6)
1616	7		69.00 327.50	874( 3)
1617	10		69.00 328.00	673( 4)
1618	11		69.00 328.50	429( 7)
1619	4		69.00 329.00	245( 11)
1620	5		69.00 329.50	228( 4)
1621	13		69.00 330.00	228( 2)
1622	5		69.00 330.50	776( 13)
1624	1		69.00 331.00	776( 5)
1625	16		69.00 331.50	759( 1)
1659	24		69.20 309.00	558( 16)
1662	19		69.20 310.50	461( 4)
1663	46		69.20 311.00	846( 19)
1664	31		69.20 311.50	260( 4)
				260( 9)
				803( 13)
				1164( 7)
				504( 1)
				889( 6)
				645( 10)
				1018( 7)
				846( 17)
				1190( 3)
				889( 11)
				1276( 3)
				1035( 2)
				1164( 3)
				1207( 6)
				662( 5)
				645( 6)
				444( 3)
				444( 5)
				260( 7)
				260( 7)
				547( 14)
				547( 5)
				547( 2)
				530( 9)
				590( 9)
				834( 4)
				834( 7)
				633( 4)
				633( 7)
				616( 27)
				659( 6)
				659( 35)
				475( 6)
				475( 7)
				719( 35)
				719( 9)
				518( 22)
				518( 35)
				501( 3)
				501( 31)
				501( 20)
				561( 25)
				805( 2)
				848( 9)
				1020( 2)
				874( 3)
				489( 3)
				716( 3)
				803( 13)
				1164( 7)
				504( 1)
				889( 6)
				645( 10)
				1018( 7)
				846( 17)
				1190( 3)
				889( 11)
				1276( 3)



Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)					
1665	36	69.20 312.00	200( 4)	444( 1)	688( 4)	889( 7)	1018( 11)	1276( 9)
1666	34	69.20 312.50	200( 2)	444( 14)	547( 16)	688( 2)		
1667	23	69.20 313.00	200( 13)	547( 8)	688( 2)			
1668	24	69.20 313.50	791( 24)					
1669	12	69.20 314.00	243( 10)	590( 2)				
1670	1	69.20 314.50	243( 1)					
1671	9	69.20 315.00	286( 2)	633( 7)	633( 8)	774( 1)	834( 4)	
1672	48	69.20 315.50	286( 16)	530( 19)	877( 8)			
1673	24	69.20 316.00	286( 14)	530( 2)	676( 27)	877( 1)	1221( 21)	1264( 2)
1674	91	69.20 316.50	432( 9)	573( 31)	676( 34)	877( 14)	1264( 8)	
1675	69	69.20 317.00	432( 6)	573( 7)	676( 34)	877( 14)		
1676	33	69.20 317.50	432( 19)	573( 2)	616( 4)	676( 8)		
1677	72	69.20 318.00	231( 8)	475( 16)	616( 32)	719( 16)		
1678	101	69.20 318.50	231( 34)	475( 7)	616( 26)	719( 34)		
1679	45	69.20 319.00	231( 28)	659( 7)	719( 10)			
1680	61	69.20 319.50	274( 12)	518( 3)	659( 34)	762( 3)	1032( 9)	
1681	153	69.20 320.00	274( 34)	518( 33)	659( 24)	762( 28)	1032( 34)	
1682	95	69.20 320.50	274( 24)	518( 12)	762( 32)	1032( 27)		
1683	27	69.20 321.00	561( 27)					
1684	35	69.20 321.50	561( 34)	805( 1)				
1685	11	69.20 322.00	561( 9)	805( 2)				
1686	2	69.20 324.00	647( 1)	848( 1)				
1687	6	69.20 324.50	891( 6)					
1688	1	69.20 325.00	788( 1)					
1689	6	69.20 325.50	587( 2)	788( 3)	1020( 1)			
1690	1	69.20 326.00	587( 7)					
1691	7	69.20 326.50	831( 1)					
1692	1	69.20 327.00	489( 10)	831( 9)				
1693	19	69.20 327.50	245( 9)	630( 5)	831( 1)	874( 3)		
1694	18	69.20 328.00	245( 5)	429( 2)	673( 5)	874( 6)		
1695	13	69.20 328.50	673( 13)					
1696	5	69.20 329.00	288( 1)	776( 4)				
1697	14	69.20 329.50	716( 2)	776( 12)				
1698	12	69.20 330.00	228( 2)	472( 10)				
1699	1	69.20 330.50	228( 1)					
1700	6	69.20 331.00	228( 7)	819( 4)				
1701	2	69.20 333.00	558( 7)					
1702	19	69.20 333.50	802( 2)	1421( 11)	1464( 7)			
1703	1	69.20 334.00	460( 1)					
1704	4	69.20 334.50	662( 4)					
1705	20	69.20 307.00	174( 2)	1164( 7)	1379( 5)	1465( 5)		
1706	5	69.20 310.00	559( 5)					
1707	5	69.20 311.00	547( 7)					
1708	11	69.20 311.50	547( 3)	846( 4)	846( 11)			
1709	17	69.20 312.00	401( 9)	645( 3)	645( 10)	791( 3)	846( 13)	889( 10)
1710	52	69.20 312.50	401( 2)	645( 3)	791( 3)	889( 7)	1018( 2)	1276( 7)
1711	24	69.20 313.00	444( 6)	889( 13)	889( 11)			
1712	30	69.20 313.50	200( 4)	444( 4)	590( 10)	834( 11)		
1713	29	69.20 314.00	200( 6)	688( 1)	834( 8)			
1714	15	69.20 314.50	243( 4)	633( 12)	834( 1)			
1715	17	69.20 315.00	547( 7)					
1716	17	69.20 315.50	547( 3)	645( 3)	645( 10)	791( 3)	846( 13)	889( 10)
1717	52	69.20 316.00	401( 9)	645( 3)	791( 3)	889( 7)	1018( 2)	1276( 7)
1718	24	69.20 316.50	444( 6)	889( 13)	889( 11)			
1719	30	69.20 317.00	200( 4)	444( 4)	590( 10)	834( 11)		
1720	29	69.20 317.50	200( 6)	688( 1)	834( 8)			
1721	15	69.20 318.00	243( 4)	633( 12)	834( 1)			
1722	17	69.20 318.50	547( 7)					
1723	17	69.20 319.00	547( 3)	645( 3)	645( 10)	791( 3)	846( 13)	889( 10)
1724	52	69.20 319.50	401( 9)	645( 3)	791( 3)	889( 7)	1018( 2)	1276( 7)
1725	24	69.20 320.00	444( 6)	889( 13)	889( 11)			
1726	30	69.20 320.50	200( 4)	444( 4)	590( 10)	834( 11)		
1727	29	69.20 321.00	200( 6)	688( 1)	834( 8)			
1728	15	69.20 321.50	243( 4)	633( 12)	834( 1)			
1729	17	69.20 321.50	547( 7)					
1730	17	69.20 321.50	547( 3)	645( 3)	645( 10)	791( 3)	846( 13)	889( 10)
1731	52	69.20 321.50	401( 9)	645( 3)	791( 3)	889( 7)	1018( 2)	1276( 7)
1732	24	69.20 321.50	444( 6)	889( 13)	889( 11)			
1733	30	69.20 321.50	200( 4)	444( 4)	590( 10)	834( 11)		
1734	29	69.20 321.50	200( 6)	688( 1)	834( 8)			
1735	15	69.20 321.50	243( 4)	633( 12)	834( 1)			
1736	17	69.20 321.50	547( 7)					
1737	17	69.20 321.50	547( 3)	645( 3)	645( 10)	791( 3)	846( 13)	889( 10)
1738	52	69.20 321.50	401( 9)	645( 3)	791( 3)	889( 7)	1018( 2)	1276( 7)
1739	24	69.20 321.50	444( 6)	889( 13)	889( 11)			
1740	30	69.20 321.50	200( 4)	444( 4)	590( 10)	834( 11)		
1741	29	69.20 321.50	200( 6)	688( 1)	834( 8)			
1742	15	69.20 321.50	243( 4)	633( 12)	834( 1)			
1743	17	69.20 321.50	547( 7)					
1744	17	69.20 321.50	547( 3)	645( 3)	645( 10)	791( 3)	846( 13)	889( 10)
1745	52	69.20 321.50	401( 9)	645( 3)	791( 3)	889( 7)	1018( 2)	1276( 7)
1746	24	69.20 321.50	444( 6)	889( 13)	889( 11)			
1747	30	69.20 321.50	200( 4)	444( 4)	590( 10)	834( 11)		
1748	29	69.20 321.50	200( 6)	688( 1)	834( 8)			
1749	15	69.20 321.50	243( 4)	633( 12)	834( 1)			
1750	17	69.20 321.50	547( 7)					

Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER PTS	LAT-LONG	SW CORNER	REV (NUMBER PTS)	REV (NUMBER PTS)
1751	15	69.40	315.00	243( 15)	432( 7)
1752	63	69.40	315.50	243( 13)	432( 7)
1753	61	69.40	316.00	286( 15)	432( 10)
1754	77	69.40	316.50	286( 26)	475( 26)
1755	78	69.40	317.00	231( 9)	475( 4)
1756	65	69.40	317.50	231( 6)	475( 4)
1757	65	69.40	318.00	231( 26)	475( 4)
1758	17	69.40	318.50	518( 9)	573( 7)
1759	73	69.40	319.00	274( 15)	518( 17)
1760	70	69.40	319.50	274( 22)	616( 18)
1761	42	69.40	320.00	561( 32)	616( 4)
1762	80	69.40	320.50	561( 34)	659( 33)
1763	104	69.40	321.00	561( 7)	659( 33)
1764	62	69.40	321.50	659( 1)	805( 33)
1765	3	69.40	323.00	848( 3)	647( 6)
1766	9	69.40	323.50	501( 2)	891( 7)
1767	8	69.40	324.00	690( 1)	446( 2)
1768	12	69.40	324.50	257( 5)	544( 6)
1769	14	69.40	325.00	446( 8)	788( 1)
1770	19	69.40	325.50	544( 7)	788( 10)
1771	41	69.40	326.00	489( 9)	489( 18)
1772	3	69.40	326.50	245( 2)	532( 1)
1773	24	69.40	327.00	489( 1)	532( 1)
1774	28	69.40	327.50	831( 24)	532( 13)
1775	6	69.40	328.00	288( 11)	630( 4)
1776	2	69.40	328.50	288( 1)	630( 4)
1777	17	69.40	329.00	429( 2)	819( 4)
1778	7	69.40	330.00	429( 13)	
1779	2	69.40	330.50	819( 7)	
1780	2	69.40	332.00	1034( 2)	
1781	4	69.40	332.50	460( 4)	
1782	2	69.40	333.00	558( 2)	
1783	2	69.40	334.00	1391( 5)	1434( 1)
1784	6	69.60	305.20	186( 1)	1176( 2)
1785	3	69.60	305.60	186( 1)	662( 1)
1786	2	69.60	306.00	1336( 7)	1379( 1)
1787	11	69.60	306.40	1336( 3)	1465( 3)
1788	7	69.60	306.80	516( 2)	1465( 3)
1789	2	69.60	308.40	504( 2)	
1790	10	69.60	308.80	260( 5)	504( 5)
1791	5	69.60	309.20	260( 5)	
1792	8	69.60	309.60	559( 8)	
1793	6	69.60	310.00	547( 6)	
1794	6	69.60	310.80	791( 6)	
1795	5	69.60	311.20	791( 5)	
1796	7	69.60	311.60	590( 1)	645( 6)
1797	13	69.60	312.40	645( 8)	846( 5)
1798	6	69.60	312.80	889( 6)	
1799	11	69.60	313.20	633( 3)	834( 7)
1800	4	69.60	313.60	633( 4)	1018( 1)
1801	18	69.60	314.00	200( 4)	688( 1)
1802	9	69.60	314.40	200( 1)	444( 2)
1803		69.60	314.80		432( 3)
1804					
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Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)			
1839	18	69.60 315.20	432( 12)	1221( 3)	1264( 3)	
1841	4	69.60 316.00	243( 4)			
1842	37	69.60 316.40	475( 17)	719( 20)	719( 15)	
1843	51	69.60 316.80	231( 16)	475( 20)		
1844	6	69.60 317.20	231( 6)			
1845	12	69.60 317.60	286( 3)	774( 9)		
1846	32	69.60 318.00	274( 1)	518( 26)	762( 5)	
1847	51	69.60 318.40	274( 1)	518( 11)	573( 12)	762( 27)
1848	16	69.60 318.80	573( 14)	762( 2)		
1849	10	69.60 319.20	561( 10)			
1850	26	69.60 319.60	561( 26)			
1851	23	69.60 320.00	561( 1)	616( 18)	805( 4)	
1852	41	69.60 320.40	616( 15)	805( 26)		
1853	7	69.60 320.79	805( 7)			
1854	6	69.60 321.19	659( 6)			
1855	18	69.60 321.59	659( 17)	1032( 1)		
1856	28	69.60 321.99	647( 4)	659( 5)	1032( 19)	
1857	33	69.60 322.39	647( 21)	848( 2)	1032( 10)	
1858	14	69.60 322.79	891( 14)			
1860	3	69.60 323.59	446( 3)			
1862	6	69.60 324.39	257( 3)	501( 3)		
1867	15	69.60 326.39	544( 5)	788( 10)		
1868	7	69.60 326.79	788( 7)			
1869	16	69.60 327.19	587( 7)	776( 9)		
1870	1	69.60 327.59	587( 1)			
1873	5	69.60 328.79	630( 5)			
1875	7	69.60 329.59	819( 7)			
1877	11	69.60 330.39	429( 2)	673( 9)		
1878	1	69.60 330.79	429( 1)			
1884	2	69.60 333.19	460( 2)			
1885	1	69.60 333.59	271( 1)			
1886	4	69.60 333.99	503( 4)			
1890	1	69.60 335.59	802( 1)			
1891	1	69.60 335.99	802( 1)			
1914	5	69.70 305.20	662( 5)			
1916	20	69.70 306.00	174( 2)	1164( 9)	1336( 4)	1465( 5)
1917	7	69.70 306.40	1336( 7)			
1919	2	69.70 307.20	461( 1)	473( 1)		
1920	2	69.70 307.60	473( 1)			
1923	1	69.70 308.80	504( 2)			
1924	3	69.70 309.20	260( 3)			
1927	5	69.70 310.40	791( 5)			
1928	5	69.70 310.80	559( 5)	791( 2)		
1930	2	69.70 311.60	590( 2)			
1933	19	69.70 312.80	633( 18)	846( 1)		
1934	28	69.70 313.20	633( 18)	645( 10)		
1935	2	69.70 313.60	846( 1)	877( 1)		
1936	19	69.70 314.00	676( 2)	877( 4)		
1937	35	69.70 314.40	432( 3)	676( 16)		
1938	17	69.70 314.80	200( 1)	444( 2)		
1939	14	69.70 315.20	200( 5)	444( 9)		
1940	9	69.70 315.60	200( 1)	475( 2)		
1941	57	69.70 316.00	231( 14)	475( 17)		
					1018( 9)	1221( 2)
					688( 9)	1264( 3)
					889( 13)	
					889( 2)	
					676( 5)	
					719( 6)	
					719( 26)	

Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)	REV (NUMBER PTS)
1942	22	69.70 316.40	243( 3)	475( 9) 719( 5)
1943	17	69.70 316.80	231( 5)	
1944	11	69.70 317.20	243( 17)	
1945	56	69.70 317.60	518( 11)	
1946	40	69.70 318.00	274( 26)	762( 6)
1947	5	69.70 318.40	274( 11)	774( 12)
1948	21	69.70 318.80	774( 5)	
1949	22	69.70 319.20	561( 21)	
1950	24	69.70 319.60	561( 16)	573( 6)
1951	26	69.70 320.00	573( 9)	805( 15)
1952	11	69.70 320.40	604( 4)	805( 22)
1953	22	69.70 320.79	616( 11)	
1955	19	69.70 321.59	616( 22)	
1956	39	69.70 322.39	647( 15)	848( 4)
1957	64	69.70 322.79	647( 18)	659( 21)
1958	43	69.70 322.79	659( 16)	891( 22)
1959	16	69.70 323.19	891( 10)	1020( 9)
1960	23	69.70 323.59	446( 15)	1032( 14)
1963	6	69.70 324.79	446( 23)	690( 1)
1965	7	69.70 325.59	489( 6)	
1967	3	69.70 326.39	257( 3)	501( 4)
1968	7	69.70 326.79	532( 3)	
1969	16	69.70 327.19	288( 1)	544( 2)
1970	11	69.70 327.59	776( 1)	788( 15)
1974	8	69.70 329.19	575( 11)	
1978	15	69.70 330.79	819( 8)	
1979	4	69.70 331.19	417( 13)	673( 2)
1981	2	69.70 331.99	429( 4)	
1982	7	69.70 332.39	460( 2)	
1986	1	69.70 333.99	460( 2)	472( 5)
1992	1	69.70 336.39	503( 1)	
2014	1	69.80 305.20	802( 1)	
2015	11	69.80 305.60	662( 1)	
2016	1	69.80 306.00	1336( 5)	1379( 1) 1465( 5)
2017	4	69.80 306.40	1336( 1)	
2018	12	69.80 306.80	875( 4)	
2026	6	69.80 310.00	461( 12)	
2027	1	69.80 310.40	272( 6)	
2028	8	69.80 310.80	791( 1)	
2029	17	69.80 311.20	559( 8)	
2031	7	69.80 312.00	559( 12)	590( 5)
2032	16	69.80 312.40	834( 7)	
2033	4	69.80 312.80	633( 8)	834( 8)
2034	1	69.80 313.20	633( 4)	
2035	26	69.80 313.60	877( 1)	
2036	32	69.80 314.00	676( 13)	846( 3)
2037	11	69.80 314.40	432( 2)	1264( 10)
2038	8	69.80 314.80	432( 3)	676( 13)
2039	47	69.80 315.20	1018( 8)	1018( 5)
2040	50	69.80 315.60	444( 9)	
2041	8	69.80 316.00	200( 5)	688( 6)
2043	48	69.80 316.80	200( 6)	719( 8)
2044	82	69.80 317.20	243( 9)	475( 6)
			243( 17)	762( 2)
				762( 25)

Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER	PTS	LAT-LONG	SW CORNER	REV	(NUMBER	PTS)
2045	11		69.80	317.60	243( 3)	762( 8)	
2047	26		69.80	318.40	286( 4)	561( 22)	
2048	17		69.80	318.80	286( 2)	561( 5)	774( 10)
2049	31		69.80	319.20	774( 7)	805( 24)	
2050	36		69.80	319.60	573( 17)	604( 8)	805( 11)
2051	32		69.80	320.00	573( 22)	604( 10)	
2053	12		69.80	320.79	616( 1)	647( 2)	
2054	73		69.80	321.59	616( 21)	647( 26)	848( 9)
2055	38		69.80	321.99	616( 9)	647( 11)	848( 26)
2056	42		69.80	321.99	891( 21)	1020( 21)	891( 14)
2057	36		69.80	322.39	446( 2)	659( 10)	
2058	51		69.80	322.79	446( 25)	659( 26)	
2059	13		69.80	323.19	446( 11)	659( 2)	
2061	10		69.80	323.99	489( 10)		
2062	17		69.80	324.39	489( 17)		
2063	1		69.80	324.79	245( 1)		
2065	4		69.80	325.59	501( 4)		
2066	22		69.80	325.99	257( 2)		
2068	5		69.80	326.79	575( 5)		
2069	25		69.80	327.19	575( 25)		
2070	8		69.80	327.59	575( 8)		
2071	5		69.80	327.99	788( 3)	819( 2)	
2072	9		69.80	328.39	618( 2)	819( 7)	
2077	15		69.80	330.39	417( 15)		
2078	3		69.80	330.79	173( 2)	1034( 1)	
2080	4		69.80	331.59	460( 4)		
2083	1		69.80	332.79	716( 1)		
2084	14		69.80	333.19	259( 3)		
2085	2		69.80	333.59	228( 1)	472( 1)	716( 10)
2089	3		69.80	335.19	271( 3)		
2114	1		69.90	305.20	1379( 1)		
2115	1		69.90	305.60	631( 1)		
2116	1		69.90	306.00	631( 1)		
2127	10		69.90	310.40	272( 6)	516( 4)	
2129	3		69.90	311.20	559( 3)		
2130	24		69.90	311.60	559( 23)	834( 1)	
2131	13		69.90	312.00	559( 7)	633( 6)	
2132	7		69.90	312.40	803( 7)		
2133	5		69.90	312.80	803( 5)		
2134	18		69.90	313.20	676( 8)	877( 5)	1264( 4)
2135	26		69.90	313.60	432( 9)	676( 6)	1221( 1)
2136	10		69.90	314.00	846( 10)		1221( 3)
2137	20		69.90	314.40	645( 3)		
2138	14		69.90	314.80	401( 1)	719( 4)	719( 2)
2139	42		69.90	315.20	475( 11)	846( 13)	
2140	27		69.90	315.60	688( 7)	645( 5)	
2141	57		69.90	316.00	200( 1)	1018( 9)	
2142	81		69.90	316.40	200( 6)	1018( 16)	
2143	24		69.90	316.80	200( 1)	444( 21)	688( 22)
2145	32		69.90	317.60	243( 23)	274( 1)	518( 12)
2146	17		69.90	318.00	243( 17)	274( 25)	518( 25)
2147	12		69.90	318.40	805( 12)	518( 2)	762( 8)
2148	28		69.90	318.80	286( 7)	530( 8)	688( 3)

Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER	PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)
2149	63		69.90 319.20	530( 20)
2150	28		69.90 319.60	774( 17)
2151	3		69.90 320.00	530( 20)
2152	65		69.90 320.40	774( 22)
2153	48		69.90 320.79	647( 16)
2154	33		69.90 321.19	848( 23)
2155	49		69.90 321.59	848( 16)
2156	61		69.90 321.99	891( 2)
2157	38		69.90 322.39	1020( 8)
2159	23		69.90 323.19	1020( 26)
2160	52		69.90 323.59	690( 25)
2161	14		69.90 323.99	690( 14)
2166	6		69.90 325.99	489( 23)
2167	26		69.90 326.39	659( 16)
2168	24		69.90 326.79	489( 23)
2172	2		69.90 328.39	501( 6)
2175	2		69.90 329.59	501( 25)
2176	7		69.90 329.99	501( 8)
2182	2		69.90 332.39	575( 1)
2186	22		69.90 333.99	575( 16)
2187	5		69.90 334.39	716( 4)
2188	2		69.90 334.79	
2189	1		69.90 335.19	
2190	4		69.90 335.59	
2221	8		70.00 308.00	1176( 2)
2222	1		70.00 308.40	1477( 4)
2224	7		70.00 309.20	791( 6)
2228	13		70.00 310.80	516( 4)
2229	20		70.00 311.20	633( 6)
2231	28		70.00 312.00	760( 2)
2232	28		70.00 312.40	760( 7)
2233	47		70.00 312.80	834( 4)
2234	8		70.00 313.20	877( 10)
2236	9		70.00 314.00	877( 13)
2237	40		70.00 314.40	676( 13)
2238	11		70.00 314.80	803( 15)
2239	16		70.00 315.20	1221( 4)
2240	61		70.00 315.60	803( 3)
2241	76		70.00 316.00	719( 14)
2242	39		70.00 316.40	846( 3)
2243	12		70.00 317.20	846( 11)
2244	24		70.00 318.00	645( 1)
2246	26		70.00 318.40	518( 23)
2247	6		70.00 318.80	518( 14)
2248	6		70.00 319.20	688( 22)
2249	51		70.00 319.60	444( 26)
2250	105		70.00 320.00	561( 8)
2251	37		70.00 320.40	805( 1)
2252	59		70.00 320.79	647( 5)
2253	60		70.00 321.19	647( 25)
2254	48		70.00 321.59	848( 3)
2255	10		70.00 321.99	891( 14)
2256			70.00 321.99	1020( 17)

Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)		
2257	21	70.00 322.39	616( 21)	489( 12)	616( 11)
2258	25	70.00 322.79	245( 2)	489( 25)	
2259	51	70.00 323.19	245( 26)	489( 1)	659( 1)
2260	14	70.00 323.59	245( 12)		
2261	8	70.00 324.39	532( 8)		
2262	10	70.00 324.79	532( 7)	776( 1)	1032( 2)
2263	8	70.00 325.19	532( 8)		
2264	8	70.00 325.39	776( 1)		
2265	1	70.00 326.39	575( 1)		
2266	18	70.00 326.79	501( 18)	501( 21)	618( 14)
2267	38	70.00 327.19	257( 2)		819( 1)
2268	15	70.00 327.59	618( 15)		
2269	4	70.00 327.99	587( 4)		
2270	4	70.00 328.39	228( 4)		
2271	4	70.00 328.79	791( 3)		
2272	11	70.00 329.19	186( 9)	875( 1)	1176( 5)
2273	33	70.00 329.59	186( 3)	791( 7)	875( 3)
2274	12	70.00 330.00	186( 3)	590( 7)	1176( 6)
2275	5	70.00 330.40	229( 1)		
2276	8	70.00 330.80	834( 1)	473( 4)	633( 3)
2277	1	70.00 331.20	877( 2)		
2278	1	70.00 331.60	272( 10)		
2279	17	70.00 332.00	272( 10)	676( 1)	760( 12)
2280	29	70.00 332.40	432( 5)	432( 4)	676( 1)
2281	10	70.00 332.80	559( 4)		
2282	4	70.00 333.20	559( 12)		
2283	12	70.00 333.60	231( 3)	475( 4)	719( 12)
2284	22	70.00 334.00	231( 4)		803( 3)
2285	4	70.00 334.40	274( 4)		
2286	16	70.00 334.80	274( 1)	518( 12)	762( 7)
2287	13	70.00 335.20	274( 4)	518( 5)	846( 2)
2288	23	70.00 335.60	274( 4)	645( 17)	846( 6)
2289	36	70.00 336.00	401( 11)	561( 1)	846( 6)
2290	58	70.00 336.40	401( 3)	561( 18)	1018( 11)
2291	44	70.00 336.80	561( 15)	889( 9)	805( 11)
2292	37	70.00 337.20	200( 1)	444( 21)	688( 4)
2293	32	70.00 337.60	200( 3)	444( 20)	688( 9)
2294	17	70.00 338.00	243( 15)	848( 2)	
2295	60	70.00 338.40	243( 15)	848( 25)	
2296	38	70.00 338.80	647( 20)	848( 14)	
2297	58	70.00 339.20	647( 4)	891( 4)	
2298	103	70.00 339.60	286( 26)	530( 16)	891( 25)
2299	83	70.00 340.00	286( 11)	530( 23)	690( 5)
2300	34	70.00 340.40	286( 21)	446( 20)	690( 25)
2301	25	70.00 340.80	573( 25)	573( 1)	690( 11)
2302	12	70.00 341.20	489( 1)		
2303	43	70.00 341.60	245( 18)	573( 11)	
2304	44	70.00 342.00	245( 23)	489( 25)	
2305	15	70.00 342.40	616( 15)	489( 11)	616( 10)
2306	16	70.00 342.80	532( 11)		
2307	23	70.00 343.20	532( 23)	616( 5)	
2308	4	70.00 343.60	288( 2)		
2309	2	70.00 344.00	776( 2)	532( 2)	
2310	19	70.00 344.40	1032( 19)		
2311	5	70.00 344.80	819( 5)		
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Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)
2367	25	70.10 326.39	819( 18)
2368	25	70.10 326.79	618( 7)
2369	5	70.10 327.19	618( 25)
2371	2	70.10 327.99	618( 5)
2376	4	70.10 329.99	257( 1)
2385	6	70.10 333.59	460( 4)
2419	1	70.20 307.20	429( 6)
2420	9	70.20 307.60	791( 1)
2422	4	70.20 308.40	791( 9)
2423	12	70.20 308.80	875( 4)
2424	7	70.20 309.20	430( 2)
2425	1	70.20 309.60	186( 6)
2427	8	70.20 310.40	430( 1)
2428	20	70.20 310.80	473( 3)
2429	27	70.20 311.20	473( 4)
2430	7	70.20 311.60	229( 3)
2431	44	70.20 312.00	432( 5)
2432	14	70.20 312.40	272( 16)
2433	20	70.20 312.80	272( 4)
2434	20	70.20 313.20	475( 8)
2435	27	70.20 313.60	231( 9)
2436	18	70.20 314.00	231( 4)
2437	27	70.20 314.40	559( 23)
2438	8	70.20 314.80	559( 4)
2440	10	70.20 315.60	518( 9)
2441	25	70.20 316.00	274( 6)
2442	68	70.20 316.40	274( 3)
2443	48	70.20 317.20	561( 10)
2444	68	70.20 317.60	561( 1)
2445	48	70.20 318.00	401( 8)
2446	69	70.20 318.40	604( 3)
2447	65	70.20 318.80	604( 15)
2448	48	70.20 319.20	444( 5)
2449	38	70.20 319.60	200( 19)
2450	65	70.20 320.00	200( 23)
2451	56	70.20 320.40	647( 25)
2452	45	70.20 320.79	848( 23)
2453	44	70.20 321.19	647( 5)
2454	63	70.20 321.59	891( 24)
2455	55	70.20 321.99	1020( 24)
2456	53	70.20 322.39	690( 21)
2457	32	70.20 322.79	1020( 12)
2458	11	70.20 323.19	530( 25)
2459	41	70.20 323.59	774( 23)
2460	51	70.20 323.99	489( 22)
2461	20	70.20 324.39	573( 11)
2462	7	70.20 324.79	776( 24)
2464	20	70.20 325.19	532( 25)
2465	52	70.20 325.59	616( 16)
2466	45	70.20 325.99	575( 7)
2467	18	70.20 326.39	659( 20)
2471	1	70.20 326.79	659( 11)
2472	1	70.20 328.39	618( 24)
			618( 18)
			173( 1)
			1034( 1)
			819( 22)
			819( 20)
			1032( 19)
			1032( 1)
			846( 24)
			846( 1)
			1018( 24)
			889( 2)
			1018( 17)
			848( 19)
			1020( 5)
			1020( 12)
			774( 19)
			530( 25)
			774( 23)
			489( 22)
			573( 11)
			532( 25)
			616( 16)
			776( 24)
			532( 11)
			616( 16)
			575( 7)
			659( 20)
			659( 11)
			618( 24)
			618( 18)
			173( 1)
			1034( 1)



Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER	PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)	
2477	6		70.20 330.39	788( 6)	
2478	4		70.20 330.79	503( 4)	
2479	7		70.20 331.19	587( 7)	
2519	2		70.30 307.20	791( 2)	
2525	4		70.30 309.60	430( 2)	875( 2)
2526	11		70.30 310.00	877( 8)	1219( 3)
2528	26		70.30 310.80	432( 4)	676( 18)
2529	10		70.30 311.20	432( 6)	717( 2)
2530	4		70.30 311.60	229( 4)	
2531	8		70.30 312.00	249( 5)	719( 3)
2532	17		70.30 312.40	231( 16)	475( 1)
2533	40		70.30 312.80	231( 7)	272( 13)
2534	35		70.30 313.20	272( 17)	516( 5)
2535	11		70.30 313.60	274( 7)	518( 4)
2536	12		70.30 314.00	518( 1)	559( 1)
2537	5		70.30 314.40	559( 5)	
2538	15		70.30 314.80	561( 11)	803( 4)
2539	24		70.30 315.20	561( 2)	803( 22)
2540	6		70.30 315.60	561( 1)	805( 5)
2541	24		70.30 316.00	805( 24)	
2542	13		70.30 316.40	805( 13)	
2543	38		70.30 316.80	645( 14)	846( 24)
2544	42		70.30 317.20	645( 23)	846( 19)
2545	52		70.30 317.60	645( 3)	647( 6)
2546	83		70.30 318.00	647( 24)	848( 25)
2547	84		70.30 318.40	200( 1)	444( 13)
				1018( 10)	
2548	96		70.30 318.80	200( 25)	444( 10)
2549	62		70.30 319.20	200( 15)	444( 5)
2550	46		70.30 319.60	446( 22)	690( 24)
2551	28		70.30 320.00	243( 11)	446( 13)
2552	25		70.30 320.40	243( 25)	
2553	25		70.30 320.79	243( 7)	245( 4)
2554	59		70.30 321.19	245( 25)	489( 25)
2555	68		70.30 321.59	245( 14)	286( 21)
2556	56		70.30 321.99	286( 21)	530( 10)
2557	46		70.30 322.39	288( 13)	532( 21)
2558	79		70.30 322.79	288( 25)	532( 20)
2559	54		70.30 323.19	288( 5)	573( 25)
2560	1		70.30 323.59	776( 1)	776( 24)
2561	4		70.30 323.99	575( 1)	616( 3)
2562	24		70.30 324.39	616( 24)	
2563	28		70.30 324.79	616( 13)	819( 15)
2564	42		70.30 325.19	618( 18)	819( 24)
2565	40		70.30 325.59	618( 25)	659( 12)
2566	32		70.30 325.99	659( 24)	1032( 8)
2567	11		70.30 326.39	659( 6)	1032( 5)
2568	18		70.30 326.79	417( 18)	
2569	27		70.30 327.19	173( 8)	417( 13)
2572	10		70.30 328.39	460( 10)	1034( 6)
2576	1		70.30 329.99	503( 1)	
2578	5		70.30 330.79	788( 5)	
2617	4		70.40 306.40	791( 4)	



Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)			
2731	15	70.50 312.00	186( 3)	274( 8)	518( 4)	
2732	30	70.50 312.40	473( 12)	717( 18)	717( 9)	
2733	16	70.50 312.80	229( 3)	274( 4)		
2734	3	70.50 313.20	229( 3)			
2735	2	70.50 313.60	561( 2)			
2736	3	70.50 314.00	272( 2)	561( 1)	760( 4)	805( 16)
2737	30	70.50 314.40	272( 3)	516( 7)		
2738	22	70.50 314.80	604( 8)	805( 14)		
2739	15	70.50 315.20	559( 7)	604( 8)		
2740	28	70.50 315.60	559( 20)	848( 3)		
2741	15	70.50 316.00	559( 12)	803( 16)	848( 24)	891( 9)
2742	62	70.50 316.40	647( 22)	803( 6)	848( 18)	
2743	56	70.50 316.80	647( 23)	1020( 14)		
2744	38	70.50 317.20	891( 24)	891( 13)	1020( 25)	1020( 6)
2745	45	70.50 317.60	690( 7)	645( 1)	690( 24)	
2746	58	70.50 318.00	446( 17)	645( 25)	690( 14)	
2747	86	70.50 318.40	446( 23)	645( 14)	846( 10)	
2748	58	70.50 318.80	401( 6)	489( 7)	846( 11)	
2749	57	70.50 319.20	489( 16)	688( 11)	1018( 19)	
2750	62	70.50 319.60	200( 12)	444( 23)	1018( 24)	
2751	73	70.50 320.00	200( 25)	688( 10)	489( 15)	1018( 2)
2752	35	70.50 320.40	200( 8)	532( 15)		
2753	28	70.50 320.79	288( 5)	776( 10)	776( 24)	
2754	58	70.50 321.19	288( 24)	532( 6)		
2755	68	70.50 321.59	243( 22)	288( 16)		
2756	34	70.50 321.99	243( 23)	776( 11)		
2757	24	70.50 322.39	575( 24)			
2758	48	70.50 322.79	286( 8)	530( 19)	575( 21)	
2759	74	70.50 323.19	286( 25)	530( 25)	819( 6)	819( 25)
2760	73	70.50 323.59	286( 13)	530( 1)	774( 24)	
2761	45	70.50 323.99	573( 5)	618( 24)	819( 14)	
2762	33	70.50 324.39	573( 22)	618( 11)		
2763	16	70.50 324.79	573( 16)			
2764	10	70.50 325.19	417( 10)			
2765	74	70.50 325.59	173( 21)	417( 24)	616( 14)	1034( 15)
2766	49	70.50 325.99	173( 17)	417( 11)	1034( 2)	
2768	6	70.50 326.79	460( 6)			
2770	4	70.50 327.59	659( 4)			
2771	1	70.50 327.99	1032( 1)			
2773	3	70.50 328.79	503( 3)			
2776	1	70.50 329.99	501( 1)			
2777	4	70.50 330.39	790( 4)			
2781	3	70.50 331.99	544( 3)			
2782	1	70.50 332.39	788( 1)			
2791	2	70.50 332.99	1476( 2)			
2823	3	70.60 308.80	432( 2)	1264( 1)		
2826	2	70.60 310.00	631( 2)			
2827	16	70.60 310.40	631( 8)	719( 4)	832( 4)	
2829	7	70.60 311.20	274( 3)	518( 2)	875( 2)	
2830	8	70.60 311.60	430( 5)	875( 3)		
2831	42	70.60 312.00	186( 13)	274( 6)	430( 21)	762( 2)
2832	21	70.60 312.40	186( 20)	430( 1)		
2833	23	70.60 312.80	186( 5)	561( 18)		

Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)			
2834	25	70.60 313.20	473( 8)	561( 11)	717( 6)	
2835	28	70.60 313.60	229( 10)	473( 4)	717( 13)	805( 1)
2836	3	70.60 314.00	229( 3)			
2837	10	70.60 314.40	604( 10)			
2838	52	70.60 314.80	272( 9)	516( 24)	604( 11)	760( 8)
2839	56	70.60 315.20	272( 24)	516( 10)	760( 22)	
2840	45	70.60 315.60	272( 10)	647( 9)	760( 12)	848( 14)
2841	57	70.60 316.00	559( 24)	647( 24)	848( 21)	891( 2)
2842	59	70.60 316.40	559( 24)	647( 2)	891( 20)	1020( 13)
2843	58	70.60 316.80	559( 13)	690( 6)	803( 8)	891( 15)
2844	68	70.60 317.20	446( 21)	690( 24)	803( 13)	1020( 10)
2845	54	70.60 317.60	446( 24)	690( 17)	803( 13)	
2846	2	70.60 318.00	446( 2)			
2847	4	70.60 318.40	489( 4)			
2848	42	70.60 318.80	489( 24)	645( 5)	846( 13)	
2849	83	70.60 319.20	401( 18)	489( 17)	645( 24)	846( 24)
2850	64	70.60 319.60	401( 24)	645( 18)	846( 9)	889( 13)
2851	69	70.60 320.00	288( 4)	401( 5)	532( 14)	889( 24)
2852	103	70.60 320.40	288( 24)	532( 24)	688( 14)	776( 8)
2853	93	70.60 320.79	200( 16)	288( 19)	532( 9)	1018( 22)
2854	55	70.60 321.19	200( 24)	444( 8)	688( 24)	889( 9)
2855	29	70.60 321.59	200( 7)	575( 22)	776( 14)	1018( 1)
2856	24	70.60 321.99	575( 24)			
2857	6	70.60 322.39	819( 6)			
2858	32	70.60 322.79	618( 9)	819( 23)		
2859	42	70.60 323.19	618( 24)	819( 18)		
2860	48	70.60 323.59	286( 11)	530( 23)	618( 14)	
2861	59	70.60 323.99	286( 24)	530( 23)	774( 12)	
2862	43	70.60 324.39	286( 11)	417( 7)	530( 1)	
2863	64	70.60 324.79	173( 20)	417( 24)	573( 5)	
2864	62	70.60 325.19	173( 24)	417( 14)	1034( 24)	1034( 13)
2865	12	70.60 325.59	173( 3)	1034( 9)		
2866	1	70.60 325.99	259( 1)			
2867	1	70.60 326.39	659( 2)			
2868	2	70.60 326.79	1032( 6)			
2869	6	70.60 327.19	546( 5)	788( 4)		
2870	9	70.60 327.59	588( 1)			
2871	1	70.60 327.99	588( 4)			
2872	1	70.60 328.39	274( 4)	518( 7)	588( 1)	
2873	12	70.60 328.79	274( 4)	631( 4)	832( 2)	
2874	10	70.60 329.19	274( 4)	631( 12)	832( 4)	
2875	18	70.60 329.59	274( 2)	832( 1)		
2876	3	70.60 329.99	561( 2)	875( 2)		
2877	11	70.60 330.39	561( 9)	430( 1)	875( 9)	
2878	14	70.60 330.79	186( 4)	430( 3)	805( 2)	
2879	8	70.60 331.19	186( 3)	473( 6)	717( 8)	
2880	16	70.60 331.59	229( 2)	473( 3)	848( 2)	
2881	28	70.60 331.99	229( 23)	717( 3)		
2882	33	70.60 332.39	647( 16)	848( 17)		
2883	16	70.60 332.79	516( 1)	647( 6)	848( 1)	891( 8)
2884	84	70.60 333.19	272( 14)	516( 24)	760( 12)	1020( 11)
2885	92	70.60 333.59	272( 24)	516( 22)	690( 6)	891( 17)
2886	73	70.60 333.99	272( 10)	446( 21)	760( 20)	1020( 6)
2887	51	70.60 334.39	446( 24)	559( 9)	760( 12)	
2888	26	70.60 334.79	446( 3)	559( 23)	690( 18)	

Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)
2945	23	70.70 317.60	559( 13)
2946	44	70.70 318.00	803( 4)
2947	24	70.70 318.40	803( 21)
2949	18	70.70 319.20	803( 7)
2950	74	70.70 319.60	532( 14)
2951	118	70.70 320.00	532( 24)
2952	79	70.70 320.40	401( 18)
2953	77	70.70 320.79	645( 5)
2954	73	70.70 321.19	532( 10)
2955	73	70.70 321.59	776( 8)
2956	87	70.70 321.99	645( 23)
2957	47	70.70 322.39	776( 24)
2958	15	70.70 322.79	889( 14)
2959	4	70.70 323.19	575( 24)
2960	9	70.70 323.59	444( 2)
2961	57	70.70 323.99	200( 16)
2962	99	70.70 324.39	200( 24)
2963	73	70.70 324.79	618( 22)
2964	53	70.70 325.19	243( 4)
2965	9	70.70 325.59	417( 9)
2966	2	70.70 325.99	173( 20)
2968	2	70.70 326.79	173( 24)
2972	1	70.70 328.39	173( 4)
2974	6	70.70 329.19	286( 13)
2984	3	70.70 333.19	286( 23)
2985	3	70.70 333.59	774( 11)
2986	3	70.70 333.99	530( 24)
3026	6	70.80 310.00	460( 18)
3027	22	70.80 310.40	573( 3)
3028	18	70.80 310.80	1032( 3)
3029	3	70.80 311.20	259( 2)
3030	27	70.80 311.60	561( 14)
3031	15	70.80 312.00	631( 13)
3032	10	70.80 312.40	832( 10)
3033	4	70.80 312.80	832( 4)
3034	5	70.80 313.20	631( 3)
3035	29	70.80 313.60	832( 2)
3036	52	70.80 314.00	805( 5)
3037	13	70.80 314.40	430( 20)
3038	39	70.80 314.80	430( 16)
3039	63	70.80 315.20	848( 3)
3040	39	70.80 315.60	647( 2)
3041	36	70.80 316.00	473( 23)
3042	50	70.80 316.40	446( 19)
3043	80	70.80 316.80	516( 1)
3044	53	70.80 317.20	446( 3)
3045	28	70.80 317.60	489( 23)
3046	21	70.80 318.00	559( 10)
3047	40	70.80 318.40	532( 17)
3048	59	70.80 318.80	532( 24)
3049	52	70.80 319.20	532( 9)
3050	17	70.80 319.60	776( 15)
3051	22	70.80 320.00	645( 5)
3052	40	70.80 320.40	846( 14)
			489( 6)
			489( 23)
			489( 17)
			288( 4)
			288( 22)
			288( 20)
			401( 20)
			401( 6)
			444( 2)
			200( 16)
			200( 24)
			618( 15)
			243( 4)
			417( 9)
			173( 20)
			173( 24)
			173( 4)
			286( 10)
			460( 3)
			259( 2)
			546( 1)
			659( 3)
			187( 3)
			187( 2)
			718( 6)
			274( 2)
			588( 22)
			588( 18)
			561( 3)
			631( 14)
			631( 13)
			832( 10)
			832( 4)
			647( 1)
			848( 3)
			891( 2)
			717( 8)
			690( 8)
			473( 11)
			690( 12)
			516( 23)
			516( 2)
			760( 11)
			760( 24)
			760( 15)
			559( 16)
			776( 11)
			776( 24)
			532( 24)
			532( 9)
			776( 15)
			575( 2)
			575( 22)
			575( 21)
			645( 5)
			846( 14)
			846( 23)
			846( 15)
			776( 24)
			889( 14)
			1018( 23)
			889( 10)
			575( 1)
			688( 24)
			819( 6)
			819( 24)
			1018( 2)
			530( 23)
			774( 11)
			774( 24)
			1034( 24)
			1034( 11)
			530( 23)
			417( 15)
			1034( 13)

Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)			
3053	72	70.80 320.79	645( 23)	819( 8)	846( 23)	
3054	107	70.80 321.19	401( 18)	645( 21)	819( 24)	846( 13)
3055	95	70.80 321.59	401( 23)	618( 12)	819( 24)	1018( 22)
3056	67	70.80 321.99	444( 3)	618( 24)	889( 17)	1018( 23)
3057	66	70.80 322.39	200( 15)	618( 14)	688( 14)	
3058	70	70.80 322.79	200( 23)	444( 24)	688( 23)	
3059	74	70.80 323.19	173( 23)	417( 12)	444( 23)	1018( 4)
3060	61	70.80 323.59	173( 24)	200( 11)	417( 24)	688( 12)
3061	17	70.80 323.99	173( 3)	417( 14)	1034( 23)	1034( 16)
3062	21	70.80 324.39	460( 21)	243( 3)	1034( 11)	
3063	24	70.80 324.79	460( 24)			
3064	23	70.80 325.19	286( 12)	530( 6)		
3065	30	70.80 325.59	286( 10)	774( 20)		
3066	27	70.80 325.99	259( 3)	774( 24)		
3067	6	70.80 326.39	774( 6)			
3068	5	70.80 326.79	573( 5)			
3071	10	70.80 327.99	790( 10)			
3077	12	70.80 330.39	632( 12)			
3085	1	70.80 333.59	718( 1)			
3086	2	70.80 333.99	718( 2)			
3093	1	70.80 336.79	630( 1)			
3095	2	70.80 337.59	603( 2)			
3112	1	70.90 304.40	617( 1)			
3124	1	70.90 309.20	258( 1)			
3126	8	70.90 310.00	561( 7)			
3128	18	70.90 310.80	588( 17)			
3130	13	70.90 311.60	631( 1)			
3132	29	70.90 312.40	631( 10)			
3133	20	70.90 313.20	631( 8)			
3134	37	70.90 313.60	631( 1)			
3135	41	70.90 314.00	430( 2)			
3136	82	70.90 314.40	186( 15)			
3137	68	70.90 314.80	186( 20)			
3138	48	70.90 315.20	186( 14)			
3139	12	70.90 315.60	473( 12)			
3140	52	70.90 316.00	229( 24)			
3141	69	70.90 316.40	229( 23)			
3142	20	70.90 316.80	229( 5)			
3143	40	70.90 317.20	272( 10)			
3144	95	70.90 317.60	272( 19)			
3145	63	70.90 318.00	288( 23)			
3146	52	70.90 318.40	288( 16)			
3147	44	70.90 318.80	559( 24)			
3148	43	70.90 319.20	559( 20)			
3149	28	70.90 319.60	575( 21)			
3150	17	70.90 320.00	803( 7)			
3151	40	70.90 320.40	819( 14)			
3152	38	70.90 320.79	819( 23)			
3153	24	70.90 321.19	618( 17)			
3154	51	70.90 321.59	618( 23)			
3155	72	70.90 321.99	401( 5)			
3156	108	70.90 322.39	173( 23)			
			417( 24)			
			805( 1)			
			805( 1)			
			832( 12)			
			647( 6)			
			647( 5)			
			647( 13)			
			875( 24)			
			430( 21)			
			430( 24)			
			430( 3)			
			473( 11)			
			473( 17)			
			489( 19)			
			760( 8)			
			516( 17)			
			776( 17)			
			559( 7)			
			776( 12)			
			532( 23)			
			760( 23)			
			776( 23)			
			846( 11)			
			846( 23)			
			645( 23)			
			846( 17)			
			889( 20)			
			889( 10)			
			1018( 17)			
			1034( 21)			

Table 6: Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER	PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)	1018( 23)	1034( 24)
3158	111	70.90	322.79	688( 11)	889( 18)	1034( 24)
3159	79	70.90	323.19	460( 3)	1018( 9)	1034( 7)
3160	77	70.90	323.59	444( 15)		
3161	40	70.90	323.99	460( 24)		
3162	2	70.90	324.39			
3163	12	70.90	324.79	259( 1)		
3164	3	70.90	325.19	503( 1)		
3165	4	70.90	325.59			
3166	4	70.90	325.99			
3167	21	70.90	326.39	546( 2)		
3168	14	70.90	326.79	790( 1)		
3169	8	70.90	327.19			
3170	19	70.90	327.59	790( 11)		
3171	2	70.90	327.99	573( 8)		
3174	1	70.90	329.19	790( 2)		
3178	7	70.90	330.79	833( 1)		
3193	3	70.90	336.79	431( 5)		
3194	8	70.90	337.19	587( 3)		
3195	3	70.90	337.59	603( 3)		
3213	1	71.00	304.80	617( 1)		
3224	14	71.00	309.20	561( 1)		
3225	8	71.00	309.60	805( 12)		
3226	15	71.00	310.40			
3227	9	71.00	310.80			
3228	2	71.00	312.00	848( 9)		
3231	12	71.00	312.40			
3232	9	71.00	312.80	647( 10)		
3233	25	71.00	313.20	891( 4)		
3234	21	71.00	313.60	832( 23)		
3235	74	71.00	314.00	1020( 15)		
3236	43	71.00	314.40	832( 4)		
3237	37	71.00	314.80	690( 7)		
3238	23	71.00	315.20	489( 23)		
3239	78	71.00	315.60	674( 9)		
3240	92	71.00	316.00	489( 23)		
3241	43	71.00	316.40	674( 1)		
3242	26	71.00	316.80	532( 13)		
3243	100	71.00	317.20	717( 13)		
3244	127	71.00	317.60	473( 19)		
3245	149	71.00	318.00	473( 23)		
3246	7	71.00	318.40	473( 2)		
3247	68	71.00	318.80	674( 9)		
3248	76	71.00	319.20	489( 23)		
3249	37	71.00	319.60	674( 1)		
3250	68	71.00	320.00	532( 23)		
3251	56	71.00	320.40	532( 1)		
3252	34	71.00	320.80	532( 2)		
3253	25	71.00	321.20	760( 16)		
3254	51	71.00	321.60	760( 19)		
3255	67	71.00	322.00	760( 22)		
3256	48	71.00	322.40	760( 23)		
3257	48	71.00	322.80	819( 23)		
3258	74	71.00	323.20	819( 9)		

Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)	REV (NUMBER PTS)
3259	70	71.00 323.19	645( 11)	846( 2)
3260	52	71.00 323.59	889( 23)	1018( 14)
3261	62	71.00 323.99	259( 4)	503( 9)
3262	39	71.00 324.39	200( 23)	688( 14)
3263	24	71.00 324.79	200( 23)	
3264	2	71.00 325.19	200( 1)	
3265	1	71.00 325.59	243( 1)	
3266	5	71.00 325.99	243( 5)	
3267	3	71.00 326.39	790( 3)	
3269	15	71.00 327.19	286( 9)	774( 6)
3270	37	71.00 327.59	286( 18)	530( 4)
3271	13	71.00 327.99	286( 5)	774( 6)
3272	4	71.00 328.39	573( 1)	833( 3)
3273	4	71.00 328.79	573( 4)	
3277	3	71.00 330.39	616( 3)	
3278	2	71.00 330.79	187( 2)	
3281	2	71.00 331.99	659( 2)	
3282	5	71.00 332.39	1032( 5)	
3290	4	71.00 335.59	603( 4)	
3291	8	71.00 335.99	603( 8)	
3292	1	71.00 336.39	788( 1)	
3293	15	71.00 336.79	788( 15)	788( 2)
3294	7	71.00 337.19	646( 5)	
3323	8	71.10 308.80	459( 8)	
3324	15	71.10 309.20	459( 6)	
3325	3	71.10 309.60	459( 3)	805( 9)
3326	4	71.10 310.00	805( 4)	
3327	10	71.10 310.40	258( 10)	
3328	2	71.10 310.80	647( 1)	848( 15)
3329	26	71.10 311.20	258( 4)	
3330	28	71.10 311.60	647( 5)	
3331	17	71.10 312.00	647( 4)	891( 10)
3332	16	71.10 312.40	891( 13)	
3333	40	71.10 312.80	446( 21)	
3334	29	71.10 313.20	446( 20)	690( 3)
3335	30	71.10 313.60	446( 9)	
3336	15	71.10 314.00	489( 10)	
3337	40	71.10 314.40	489( 21)	832( 16)
3338	48	71.10 314.80	489( 23)	832( 21)
3339	25	71.10 315.20	631( 5)	
3340	36	71.10 315.60	832( 5)	
3341	89	71.10 316.00	288( 2)	875( 20)
			186( 1)	430( 12)
			875( 22)	532( 18)
3342	122	71.10 316.40	186( 22)	674( 5)
			875( 13)	532( 15)
3343	81	71.10 316.80	186( 23)	674( 4)
3344	33	71.10 317.20	186( 10)	674( 9)
3345	77	71.10 317.60	229( 10)	
3346	81	71.10 318.00	229( 23)	717( 23)
3347	79	71.10 318.40	229( 23)	717( 22)
3348	55	71.10 318.80	229( 1)	819( 10)
3349	81	71.10 319.20	272( 20)	819( 23)
3350	68	71.10 319.60	272( 22)	760( 17)
			516( 23)	760( 23)
			288( 3)	430( 23)
			575( 18)	717( 5)
			473( 21)	575( 23)
			473( 23)	575( 3)
			473( 13)	618( 13)
			516( 8)	819( 7)
			516( 23)	819( 23)
			516( 23)	760( 17)
			288( 23)	575( 4)
			288( 3)	717( 23)
			288( 18)	717( 22)
			288( 3)	819( 10)
			288( 3)	819( 23)
			288( 3)	819( 1)



Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)				
3351	51	71.10 320.00	173( 3)	272( 15)	417( 14)	516( 3)	760( 16)
3352	78	71.10 320.40	173( 23)	417( 22)	559( 17)	1034( 17)	
3353	89	71.10 320.79	173( 23)	417( 21)	559( 22)	1034( 23)	
3354	55	71.10 321.19	173( 9)	559( 17)	803( 12)	1034( 17)	
3355	45	71.10 321.59	460( 22)	803( 23)			
3356	41	71.10 321.99	460( 23)	803( 18)			
3357	9	71.10 322.39	460( 9)				
3358	8	71.10 322.79	503( 8)				
3359	76	71.10 323.19	259( 20)	503( 23)	645( 12)	846( 21)	
3360	79	71.10 323.59	259( 21)	401( 2)	503( 15)	645( 19)	846( 22)
3361	61	71.10 323.99	259( 13)	645( 22)	846( 14)	889( 12)	
3362	4	71.10 324.39	546( 4)				
3364	33	71.10 325.19	200( 10)	546( 1)	790( 22)		
3365	26	71.10 325.59	200( 16)	444( 2)	790( 8)		
3366	12	71.10 325.99	200( 12)				
3368	3	71.10 326.79	243( 3)				
3369	15	71.10 327.19	632( 11)	833( 4)			
3370	28	71.10 327.59	530( 5)	632( 23)			
3371	23	71.10 327.99	286( 9)	530( 4)	632( 10)		
3372	7	71.10 328.39	876( 7)				
3374	6	71.10 329.19	573( 6)				
3375	7	71.10 329.59	573( 7)				
3378	7	71.10 330.79	474( 6)	718( 1)			
3381	1	71.10 331.99	659( 1)	659( 4)			
3382	7	71.10 332.39	517( 3)				
3383	2	71.10 332.79	517( 2)				
3390	10	71.10 335.59	257( 3)	603( 7)			
3392	5	71.10 336.39	646( 5)				
3393	2	71.10 336.79	646( 1)	847( 1)	1148( 1)	1234( 3)	
3394	12	71.10 337.19	646( 2)	788( 6)	1248( 6)		
3423	17	71.20 308.80	172( 5)	1205( 6)	1248( 5)		
3424	13	71.20 309.20	172( 7)	1162( 1)	848( 7)		
3426	15	71.20 310.00	459( 4)	647( 4)	848( 7)		
3427	29	71.20 310.40	647( 21)	848( 6)	891( 2)		
3428	19	71.20 310.80	647( 10)	848( 1)	891( 3)	1020( 5)	
3429	6	71.20 311.20	891( 6)				
3430	9	71.20 311.60	446( 5)	1020( 4)			
3431	20	71.20 312.00	258( 3)	446( 7)	502( 5)	690( 5)	
3434	14	71.20 312.20	489( 8)				
3436	14	71.20 314.00	489( 5)	588( 9)			
3437	31	71.20 314.40	532( 8)	588( 23)			
3438	43	71.20 314.80	532( 22)	588( 21)			
3439	40	71.20 315.20	288( 6)	532( 13)			
3440	56	71.20 315.60	631( 20)	776( 14)			
3441	71	71.20 316.00	575( 19)	631( 23)			
3442	41	71.20 316.40	575( 22)	631( 11)			
3443	54	71.20 316.80	575( 19)	875( 8)			
3444	83	71.20 317.20	186( 12)	819( 2)			
3445	103	71.20 317.60	186( 20)	618( 4)			875( 22)
3446	72	71.20 318.00	186( 23)	430( 23)			819( 23)
3447	38	71.20 318.40	186( 3)	430( 15)			
3448	73	71.20 318.80	186( 21)	473( 9)			
3449	114	71.20 319.20	229( 21)	417( 6)			
			173( 17)	229( 23)			
							717( 21)
							1034( 9)

Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)									
3450	88	71.20 319.60	173( 21)	229( 16)	417( 23)	473( 6)	1034( 22)					
3451	85	71.20 320.00	173( 20)	272( 8)	417( 9)	516( 19)	760( 6)					1034( 23)
3452	89	71.20 320.40	272( 23)	460( 15)	516( 23)	760( 23)	1034( 5)					
3453	85	71.20 320.79	272( 22)	460( 22)	516( 18)	760( 23)						
3454	44	71.20 321.19	272( 7)	460( 23)	559( 6)	760( 8)						
3455	23	71.20 321.59	559( 23)									
3456	56	71.20 321.99	259( 13)	503( 23)	559( 16)	803( 4)						
3457	66	71.20 322.39	259( 23)	503( 18)	559( 2)	803( 23)						
3458	59	71.20 322.79	259( 22)	503( 15)	803( 22)							
3459	22	71.20 323.19	259( 3)	546( 8)	803( 1)							
3460	23	71.20 323.59	546( 23)									
3461	46	71.20 323.99	546( 23)	790( 14)	846( 9)							
3462	50	71.20 324.39	401( 6)	546( 6)	645( 7)							
3463	23	71.20 324.79	790( 23)									
3464	3	71.20 325.19	790( 1)	889( 2)								
3465	15	71.20 325.59	889( 15)									
3466	35	71.20 325.99	200( 10)	632( 3)	833( 15)	889( 7)						
3467	67	71.20 326.39	200( 23)	632( 22)	833( 22)							
3468	30	71.20 326.79	200( 1)	632( 22)	833( 7)							
3469	12	71.20 327.19	632( 12)									
3470	3	71.20 327.59	243( 1)	876( 2)								
3471	8	71.20 327.99	243( 1)	431( 4)	876( 3)							
3472	11	71.20 328.39	675( 8)	876( 3)								
3477	3	71.20 330.39	573( 3)									
3478	7	71.20 330.79	573( 7)									
3479	2	71.20 331.19	573( 2)									
3490	17	71.20 335.59	158( 5)	646( 12)								
3491	7	71.20 335.99	646( 7)									
3492	4	71.20 336.39	1320( 1)	1492( 3)								
3522	4	71.30 308.40	617( 4)									
3523	4	71.30 308.80	647( 2)									
3524	2	71.30 309.20	891( 1)									
3525	49	71.30 309.60	647( 12)	848( 14)	891( 15)	1205( 8)						
3526	43	71.30 310.00	172( 3)	647( 4)	1020( 4)	1162( 5)	1205( 4)	1235( 3)				
3527	23	71.30 310.40	1248( 11)	1278( 9)								
3528	16	71.30 310.80	446( 2)	1162( 1)	1205( 2)	1248( 18)						
3529	38	71.30 311.20	459( 6)	690( 5)	1020( 1)	1205( 1)	1278( 3)					
3530	11	71.30 311.60	446( 9)	459( 17)	690( 12)							
3531	1	71.30 312.00	459( 11)									
3532	7	71.30 312.40	489( 1)									
3533	25	71.30 312.80	258( 5)	502( 2)								
3534	28	71.30 313.20	258( 16)	489( 9)								
3535	42	71.30 313.60	258( 22)	532( 6)								
3536	43	71.30 314.00	258( 2)	288( 20)	776( 2)							
3537	44	71.30 314.40	288( 1)	532( 20)	532( 18)	776( 16)						
3538	33	71.30 314.80	288( 10)	532( 12)	776( 22)							
3539	43	71.30 315.20	575( 16)	588( 1)	776( 16)							
3540	43	71.30 315.60	575( 20)	588( 23)								
3541	39	71.30 316.00	575( 21)	588( 22)								
3542	69	71.30 316.40	575( 4)	588( 17)								
3543	71	71.30 316.80	618( 20)	631( 9)	618( 2)	819( 13)	832( 3)					
3544	56	71.30 317.20	618( 21)	631( 22)	819( 20)	832( 20)						
			618( 17)	631( 23)	832( 16)							

Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)			
3545	28	71.30 317.60	417( 3)	631( 9)	875( 16)	
3546	87	71.30 318.00	173( 14)	417( 22)	430( 8)	1034( 6)
3547	151	71.30 318.40	173( 22)	186( 19)	417( 22)	875( 22)
			1034( 22)			
3548	132	71.30 318.80	173( 23)	186( 23)	417( 17)	875( 3)
			1034( 22)			
3549	64	71.30 319.20	173( 5)	186( 21)	430( 11)	674( 1)
			1034( 14)			
3550	67	71.30 319.60	229( 6)	460( 23)	473( 16)	717( 22)
3551	86	71.30 320.00	229( 23)	460( 22)	473( 21)	717( 20)
3552	67	71.30 320.40	229( 20)	460( 8)	473( 22)	717( 17)
3553	48	71.30 320.79	229( 13)	259( 10)	473( 2)	503( 19)
3554	98	71.30 321.19	259( 22)	272( 16)	503( 23)	516( 23)
3555	111	71.30 321.59	259( 23)	272( 22)	503( 22)	516( 22)
3556	57	71.30 321.99	259( 9)	272( 22)	516( 15)	760( 11)
3557	38	71.30 322.39	272( 4)	546( 18)	559( 13)	760( 3)
3558	56	71.30 322.79	546( 22)	559( 23)	790( 11)	803( 12)
3559	70	71.30 323.19	546( 14)	559( 22)	790( 22)	
3560	50	71.30 323.59	559( 6)	790( 22)	803( 22)	
3561	31	71.30 323.99	790( 9)	803( 22)		
3562	8	71.30 324.39	803( 8)			
3563	12	71.30 324.79	833( 12)			
3564	46	71.30 325.19	632( 21)	645( 1)	833( 22)	846( 2)
3565	46	71.30 325.59	401( 1)	632( 23)	833( 22)	
3566	39	71.30 325.99	632( 19)	645( 4)	833( 8)	889( 2)
3567	25	71.30 326.39	645( 3)	876( 22)		
3568	10	71.30 326.79	876( 6)	889( 2)	1018( 2)	
3569	4	71.30 327.19	187( 1)	431( 3)		
3570	3	71.30 327.59	200( 2)	444( 1)		
3571	5	71.30 327.99	187( 3)	474( 1)	718( 1)	
3572	10	71.30 329.19	230( 10)			
3573	6	71.30 330.39	530( 4)	761( 2)		
3574	5	71.30 330.79	530( 5)			
3575	7	71.30 331.19	573( 7)			
3576	6	71.30 331.59	560( 1)	573( 5)		
3577	7	71.30 331.99	573( 7)			
3578	7	71.30 332.39	603( 7)			
3579	5	71.30 332.79	1492( 5)			
3580	4	71.30 333.19	1492( 4)			
3581	11	71.30 333.59	1320( 3)			
3582	11	71.30 333.99	1020( 4)			
3583	4	71.30 334.39	1020( 1)			
3584	14	71.30 334.79	891( 7)			
3585	15	71.30 335.19	690( 3)			
3586	13	71.30 335.59	1235( 1)			
3587	1	71.30 335.99	172( 13)			
3588	48	71.30 336.39	172( 13)			
3589	35	71.30 336.79	172( 1)			
3590	22	71.30 337.19	459( 1)			
3591	9	71.30 337.59	459( 12)			
3592	12	71.30 337.99	288( 8)			
3593	50	71.30 338.39	288( 22)			
3594	62	71.30 338.79	258( 20)			
3595	56	71.30 339.19				
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Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)		
3636	37	71.40 314.00	258( 21)	575( 16)	
3637	46	71.40 314.40	258( 22)	575( 23)	
3638	37	71.40 314.80	258( 4)	575( 6)	819( 1)
3639	40	71.40 315.20	618( 20)	819( 20)	618( 5)
3640	41	71.40 315.60	618( 20)	819( 21)	
3641	26	71.40 316.00	588( 5)	618( 20)	
3642	27	71.40 316.40	417( 5)	588( 22)	819( 1)
3643	52	71.40 316.80	417( 22)	588( 23)	
3644	84	71.40 317.20	173( 14)	417( 23)	1034( 7)
3645	99	71.40 317.60	173( 22)	417( 19)	588( 19)
3646	82	71.40 318.00	173( 8)	460( 13)	631( 13)
3647	61	71.40 318.40	460( 22)	631( 22)	832( 17)
3648	51	71.40 318.80	186( 1)	631( 10)	875( 19)
3649	69	71.40 319.20	186( 2)	430( 12)	460( 11)
3650	121	71.40 319.60	186( 22)	259( 12)	674( 22)
3651	113	71.40 320.00	186( 22)	259( 22)	503( 21)
3652	77	71.40 320.40	186( 22)	259( 22)	430( 20)
3653	74	71.40 320.79	186( 2)	229( 7)	503( 14)
			717( 22)	229( 7)	473( 21)
3654	88	71.40 321.19	229( 22)	473( 22)	875( 23)
3655	99	71.40 321.59	229( 23)	473( 22)	674( 22)
3656	34	71.40 321.99	229( 4)	516( 7)	790( 12)
3657	79	71.40 322.39	272( 18)	516( 22)	790( 13)
3658	78	71.40 322.79	272( 23)	516( 22)	
3659	59	71.40 323.19	272( 22)	516( 16)	790( 11)
3660	43	71.40 323.59	272( 5)	559( 16)	
3661	66	71.40 323.99	559( 22)	632( 2)	760( 7)
3662	76	71.40 324.39	559( 22)	632( 22)	833( 22)
3663	41	71.40 324.79	559( 8)	632( 22)	803( 10)
3664	4	71.40 325.19	632( 1)	876( 3)	833( 11)
3665	60	71.40 325.59	187( 14)	431( 21)	
3666	42	71.40 325.99	187( 13)	431( 12)	876( 22)
3667	2	71.40 326.39	846( 2)	431( 12)	
3668	14	71.40 326.79	718( 14)		
3669	27	71.40 327.19	474( 4)	645( 2)	
3670	27	71.40 327.59	230( 3)	401( 2)	846( 1)
3671	13	71.40 327.99	474( 1)	718( 22)	
3672	2	71.40 328.39	444( 1)	718( 8)	1018( 1)
3673	2	71.40 328.79	517( 5)	688( 1)	
3674	5	71.40 329.19	200( 2)		
3675	2	71.40 329.59	603( 1)		
3676	1	71.40 330.00	603( 1)		
3677	1	71.40 330.40	646( 1)		
3678	1	71.40 330.80	201( 3)	1492( 4)	
3679	1	71.40 331.20	1376( 12)	1376( 1)	
3680	12	71.40 331.60	1161( 2)		
3681	3	71.40 332.00	244( 3)		
3682	3	71.40 332.40	805( 1)		
3683	1	71.40 332.80	1406( 1)		
3684	1	71.40 333.20	201( 1)		
3685	1	71.40 333.60	244( 1)		
3686	1	71.40 334.00	288( 9)		
3687	1	71.40 334.40	288( 8)		
3688	30	71.40 334.80	532( 16)	617( 5)	
3689	21	71.40 335.20	532( 3)	617( 9)	
3690	8	71.40 335.60			776( 1)
3691		71.40 336.00			
3692		71.40 336.40			
3693		71.40 336.80			
3694		71.40 337.20			
3695		71.40 337.60			
3696		71.40 338.00			
3697		71.40 338.40			
3698		71.40 338.80			
3699		71.40 339.20			
3700		71.40 339.60			
3701		71.40 340.00			
3702		71.40 340.40			
3703		71.40 340.80			
3704		71.40 341.20			
3705		71.40 341.60			
3706		71.40 342.00			
3707		71.40 342.40			
3708		71.40 342.80			
3709		71.40 343.20			
3710		71.40 343.60			
3711		71.40 344.00			
3712		71.40 344.40			
3713		71.40 344.80			
3714		71.40 345.20			
3715		71.40 345.60			
3716		71.40 346.00			
3717		71.40 346.40			
3718		71.40 346.80			
3719		71.40 347.20			
3720		71.40 347.60			
3721		71.40 348.00			
3722		71.40 348.40			
3723		71.40 348.80			
3724		71.40 349.20			
3725		71.40 349.60			
3726		71.40 350.00			
3727		71.40 350.40			
3728		71.40 350.80			
3729		71.40 351.20			
3730		71.40 351.60			

Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)
3731	25	71.50 312.00	1248( 3)
3732	26	71.50 312.40	776( 16)
3733	43	71.50 312.80	575( 18)
3734	55	71.50 313.20	575( 21)
3735	60	71.50 313.60	459( 17)
3736	66	71.50 314.00	575( 3)
3737	54	71.50 314.40	618( 22)
3738	35	71.50 314.80	819( 22)
3739	37	71.50 315.20	819( 21)
3740	79	71.50 315.60	417( 15)
3741	74	71.50 316.00	417( 21)
3742	39	71.50 316.40	417( 22)
3743	37	71.50 316.80	1034( 15)
3744	25	71.50 317.20	1034( 20)
3745	43	71.50 317.60	588( 3)
3746	37	71.50 318.00	588( 21)
3747	68	71.50 318.40	503( 6)
3748	73	71.50 318.80	503( 20)
3749	87	71.50 319.20	503( 14)
3750	70	71.50 319.60	503( 21)
3751	63	71.50 320.00	503( 1)
3752	84	71.50 320.40	631( 19)
3753	117	71.50 320.80	546( 14)
3754	100	71.50 321.20	546( 19)
3755	67	71.50 321.60	430( 22)
3756	34	71.50 322.00	430( 21)
3757	98	71.50 322.40	229( 1)
3758	107	71.50 322.80	229( 8)
3759	77	71.50 323.20	229( 22)
3760	100	71.50 323.60	473( 21)
3761	98	71.50 324.00	473( 11)
3762	130	71.50 324.40	516( 22)
3763	111	71.50 324.80	516( 20)
3764	27	71.50 325.20	272( 17)
3765	40	71.50 325.60	187( 1)
3766	46	71.50 326.00	187( 22)
3767	42	71.50 326.40	187( 22)
3768	9	71.50 326.80	760( 15)
3769	10	71.50 327.20	760( 4)
3770	20	71.50 327.60	187( 8)
3771	11	71.50 328.00	230( 21)
3772	9	71.50 328.40	230( 21)
3773	3	71.50 328.80	230( 1)
3774	16	71.50 329.20	761( 10)
3775	3	71.50 329.60	761( 20)
3776	1	71.50 330.00	401( 1)
3777	3	71.50 330.40	401( 3)
3778	1	71.50 330.80	1018( 3)
3779	3	71.50 331.20	1018( 3)
3780	16	71.50 331.60	200( 3)
3781	3	71.50 332.00	603( 5)
3782	16	71.50 332.40	804( 8)
3783	2	71.50 332.80	805( 2)
3784	2	71.50 333.20	805( 4)
3785	2	71.50 333.60	805( 2)
3786	2	71.50 334.00	805( 2)
3787	2	71.50 334.40	805( 2)
3788	2	71.50 334.80	805( 2)
3789	2	71.50 335.20	805( 2)
3790	2	71.50 335.60	805( 2)
3791	2	71.50 336.00	805( 2)
3792	2	71.50 336.40	805( 2)
3793	2	71.50 336.80	805( 2)
3794	2	71.50 337.20	805( 2)
3795	2	71.50 337.60	805( 2)
3796	2	71.50 338.00	805( 2)
3797	2	71.50 338.40	805( 2)
3798	2	71.50 338.80	805( 2)
3799	2	71.50 339.20	805( 2)
3800	2	71.50 339.60	805( 2)
3801	2	71.50 340.00	805( 2)
3802	2	71.50 340.40	805( 2)
3803	2	71.50 340.80	805( 2)
3804	2	71.50 341.20	805( 2)
3805	2	71.50 341.60	805( 2)
3806	2	71.50 342.00	805( 2)
3807	2	71.50 342.40	805( 2)
3808	2	71.50 342.80	805( 2)
3809	2	71.50 343.20	805( 2)
3810	2	71.50 343.60	805( 2)
3811	2	71.50 344.00	805( 2)
3812	2	71.50 344.40	805( 2)
3813	2	71.50 344.80	805( 2)
3814	2	71.50 345.20	805( 2)

Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)		
3820	1	71.60 307.60	489( 1)		
3825	11	71.60 309.60	775( 7)		
3826	18	71.60 310.00	287( 8)		
3827	8	71.60 310.40	532( 8)	776( 4)	776( 6)
3828	22	71.60 310.80	532( 3)		
3829	20	71.60 311.20	575( 12)	575( 18)	776( 1)
3830	15	71.60 311.60	575( 10)	776( 8)	
3831	18	71.60 312.00	618( 10)	819( 5)	
3832	35	71.60 312.40	617( 14)	819( 8)	
3833	8	71.60 312.80	617( 8)	618( 15)	819( 6)
3834	35	71.60 313.20	172( 14)	618( 14)	
3835	41	71.60 313.60	172( 21)	417( 11)	819( 7)
3836	70	71.60 314.00	172( 22)	173( 21)	618( 9)
3837	95	71.60 314.40	172( 22)	173( 21)	417( 21)
3838	91	71.60 314.80	172( 4)	173( 22)	417( 20)
3839	88	71.60 315.20	173( 19)	173( 22)	417( 22)
3840	49	71.60 315.60	459( 22)	417( 7)	459( 22)
3841	38	71.60 316.00	258( 9)	460( 22)	1034( 18)
3842	46	71.60 316.40	258( 20)	459( 7)	1034( 6)
3843	58	71.60 316.80	258( 20)	460( 21)	459( 11)
3844	57	71.60 317.20	258( 19)	259( 17)	459( 21)
3845	52	71.60 317.60	258( 9)	259( 22)	460( 22)
3846	44	71.60 318.00	259( 22)	503( 10)	1034( 21)
3847	22	71.60 318.40	259( 1)	503( 21)	1034( 22)
3848	53	71.60 318.80	546( 21)	546( 12)	
3849	65	71.60 319.20	546( 21)	790( 17)	
3850	49	71.60 319.60	546( 21)	790( 22)	
3851	59	71.60 320.00	588( 20)	790( 21)	
3852	46	71.60 320.40	588( 2)	790( 22)	
3853	69	71.60 320.79	631( 22)	790( 1)	
3854	91	71.60 321.19	631( 21)	832( 22)	875( 8)
3855	83	71.60 321.59	631( 16)	832( 22)	875( 22)
3856	75	71.60 321.99	186( 7)	674( 1)	875( 21)
3857	99	71.60 322.39	186( 22)	632( 11)	875( 22)
3858	108	71.60 322.79	186( 21)	632( 11)	875( 10)
3859	111	71.60 323.19	186( 22)	431( 22)	875( 14)
			876( 22)	430( 4)	473( 8)
3860	96	71.60 323.59	187( 22)	431( 22)	717( 22)
3861	114	71.60 323.99	187( 21)	431( 10)	876( 5)
			718( 18)	473( 22)	717( 22)
3862	108	71.60 324.39	230( 22)	473( 22)	
3863	99	71.60 324.79	230( 21)	473( 9)	717( 2)
			718( 22)	474( 20)	
3864	91	71.60 325.19	230( 22)	474( 6)	718( 20)
3865	63	71.60 325.59	230( 12)	516( 22)	
3866	64	71.60 325.99	272( 21)	760( 3)	
3867	31	71.60 326.39	272( 11)	761( 19)	
3868	27	71.60 326.79	560( 8)		
3869	35	71.60 327.19	560( 22)	803( 2)	
3870	26	71.60 327.59	560( 22)		
3871	19	71.60 327.99	560( 19)		
3872	9	71.60 328.39	603( 4)		
3873	11	71.60 328.79	804( 7)		

Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)			
3874	7	71.60 329.19	645( 7)	846( 2)	889( 2)	
3875	5	71.60 329.59	646( 1)	846( 6)		
3876	7	71.60 329.99	645( 1)	846( 3)	889( 1)	
3877	13	71.60 330.39	401( 3)	646( 6)		
3878	7	71.60 330.79	646( 7)			
3880	18	71.60 331.59	201( 6)	445( 8)	890( 4)	
3885	2	71.60 333.59	244( 2)			
3888	9	71.60 334.79	775( 9)			
3890	2	71.60 335.59	573( 2)			
3891	17	71.60 335.99	573( 17)			
3911	10	71.70 304.00	804( 9)	1321( 1)		
3912	3	71.70 304.40	690( 1)	804( 2)		
3913	8	71.70 304.80	603( 1)	804( 7)		
3914	5	71.70 305.20	603( 1)	804( 1)	891( 3)	
3919	5	71.70 307.20	489( 4)	1019( 1)		
3920	1	71.70 307.60	489( 1)			
3921	1	71.70 308.00	1191( 1)			
3922	3	71.70 308.40	776( 3)			
3923	2	71.70 308.80	201( 1)	776( 4)		
3925	12	71.70 309.60	244( 2)	575( 9)		
3926	19	71.70 310.00	575( 11)			
3927	16	71.70 310.40	244( 6)			
3928	11	71.70 310.80	618( 8)	775( 3)		
3929	25	71.70 311.20	287( 2)	775( 11)	819( 10)	
3930	22	71.70 311.60	618( 2)			
3931	37	71.70 312.00	173( 8)	618( 5)	775( 7)	
3932	58	71.70 312.40	173( 22)	1034( 15)		
3933	68	71.70 312.80	173( 21)	617( 4)	1034( 21)	
3934	85	71.70 313.20	173( 21)	460( 6)	617( 15)	1034( 22)
3935	94	71.70 313.60	173( 22)	460( 21)	617( 19)	1034( 21)
3936	51	71.70 314.00	173( 1)	460( 22)	1034( 10)	
3937	39	71.70 314.40	460( 21)	617( 18)		
3938	53	71.70 314.80	172( 17)	460( 19)	617( 1)	
3939	65	71.70 315.20	172( 22)	460( 3)	503( 18)	
3940	64	71.70 315.60	172( 21)	503( 22)		
3941	79	71.70 316.00	172( 22)	459( 14)	503( 21)	
3942	92	71.70 316.40	172( 13)	459( 22)	503( 15)	
3943	51	71.70 316.80	259( 5)	459( 21)	790( 4)	
3944	58	71.70 317.20	459( 21)	546( 16)		
3945	70	71.70 317.60	258( 13)	546( 17)	790( 22)	
3946	52	71.70 318.00	258( 21)	546( 10)		
3947	44	71.70 318.40	258( 22)	790( 21)		
3948	30	71.70 318.80	258( 21)	833( 4)		
3949	55	71.70 319.20	258( 18)	833( 21)		
3950	42	71.70 319.60	632( 21)			
3951	44	71.70 320.00	632( 22)			
3952	85	71.70 320.40	588( 19)	675( 3)	833( 21)	876( 21)
3953	106	71.70 320.79	187( 6)	588( 22)	632( 15)	675( 21)
			876( 21)			833( 4)
3954	108	71.70 321.19	187( 22)	588( 21)	675( 21)	876( 22)
3955	133	71.70 321.59	187( 21)	588( 21)	631( 6)	832( 21)
			876( 21)			





Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)			
4033	103	71.80 312.80	244( 4)	259( 14)	287( 22)	460( 22)
4034	92	71.80 313.20	259( 19)	287( 21)	460( 13)	503( 20)
4035	80	71.80 313.60	259( 22)	287( 21)	503( 16)	775( 21)
4036	77	71.80 314.00	259( 21)	287( 10)	503( 21)	546( 8)
4037	68	71.80 314.40	259( 21)	503( 21)	546( 21)	775( 5)
4038	72	71.80 314.80	259( 17)	503( 8)	546( 22)	617( 14)
4039	60	71.80 315.20	546( 21)	574( 3)	617( 15)	790( 11)
4040	60	71.80 315.60	546( 21)	617( 18)	790( 21)	
4041	58	71.80 316.00	546( 20)	617( 16)	790( 22)	
4042	49	71.80 316.40	172( 8)	546( 1)	617( 19)	790( 21)
4043	59	71.80 316.80	172( 21)	617( 7)	632( 3)	833( 11)
4044	62	71.80 317.20	172( 22)	632( 19)	833( 21)	
4045	66	71.80 317.60	172( 19)	459( 5)	632( 21)	833( 21)
4046	91	71.80 318.00	172( 21)	459( 21)	632( 21)	833( 22)
4047	124	71.80 318.40	172( 21)	431( 5)	459( 21)	
			876( 22)			
4048	139	71.80 318.80	172( 1)	187( 15)	431( 21)	459( 22)
			833( 16)	876( 21)		632( 22)
4049	114	71.80 319.20	187( 21)	258( 4)	431( 21)	632( 5)
			876( 21)			675( 21)
4050	126	71.80 319.60	187( 21)	258( 21)	431( 21)	459( 21)
4051	140	71.80 320.00	187( 22)	230( 2)	258( 21)	459( 4)
			675( 21)	718( 14)	876( 22)	876( 21)
4052	146	71.80 320.40	187( 21)	230( 22)	258( 21)	474( 21)
			718( 21)			675( 19)
4053	104	71.80 320.79	187( 15)	230( 21)	258( 22)	431( 4)
4054	90	71.80 321.19	230( 21)	258( 21)	474( 22)	474( 21)
4055	81	71.80 321.59	230( 21)	258( 5)	474( 14)	718( 22)
4056	63	71.80 321.99	230( 22)	474( 4)	517( 17)	718( 21)
4057	67	71.80 322.39	230( 6)	517( 21)	588( 21)	761( 6)
4058	68	71.80 322.79	517( 22)	560( 4)	588( 21)	
4059	53	71.80 323.19	517( 10)	560( 10)	588( 12)	761( 21)
4060	46	71.80 323.59	588( 22)	761( 20)	832( 4)	
4061	25	71.80 323.99	560( 1)	588( 18)	761( 6)	
4062	20	71.80 324.39	560( 2)	603( 13)	631( 3)	804( 2)
4063	42	71.80 324.79	560( 10)	603( 19)	804( 10)	832( 3)
4064	43	71.80 325.19	560( 4)	603( 21)	631( 1)	804( 17)
4065	32	71.80 325.59	186( 2)	603( 19)	804( 9)	875( 2)
4066	5	71.80 325.99	430( 3)	847( 2)		
4067	22	71.80 326.39	186( 2)	473( 1)	646( 4)	717( 6)
4068	30	71.80 326.79	158( 3)	473( 3)	847( 2)	890( 22)
4069	23	71.80 327.19	229( 1)	430( 2)	689( 8)	890( 10)
4070	40	71.80 327.59	229( 7)	445( 4)	473( 1)	689( 9)
			847( 5)	890( 7)	1019( 2)	717( 1)
4071	28	71.80 327.99	158( 1)	229( 10)	445( 10)	
4072	6	71.80 328.39	272( 3)	689( 3)		890( 7)
4073	3	71.80 328.79	244( 3)			
4074	15	71.80 329.19	272( 8)	516( 5)	760( 2)	
4075	8	71.80 329.59	559( 2)	760( 6)		
4076	3	71.80 329.99	645( 3)			
4082	7	71.80 332.79	645( 7)			
4083	7	71.80 333.19	645( 7)			
4084	4	71.80 333.99	645( 4)			

Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)		
4088	5	71.80 334.79	1405( 1)	1491( 4)	
4090	10	71.80 335.59	444( 4)	1291( 3)	
4112	5	71.90 304.40	776( 5)	1377( 3)	
4113	3	71.90 304.80	230( 2)	776( 1)	
4114	4	71.90 305.20	273( 1)	776( 3)	
4115	1	71.90 305.60	273( 1)		
4119	1	71.90 307.20	273( 1)		
4121	19	71.90 308.00	273( 8)	417( 4)	517( 7)
4122	6	71.90 308.40	173( 2)	460( 2)	1034( 2)
4123	16	71.90 308.80	560( 4)	804( 12)	
4124	38	71.90 309.20	173( 7)	417( 3)	460( 3)
			847( 5)		560( 7)
4125	38	71.90 309.60	158( 1)	173( 3)	259( 1)
			804( 2)		503( 1)
4126	43	71.90 310.00	1034( 9)	460( 1)	603( 6)
			158( 11)		646( 17)
4127	53	71.90 310.40	1191( 18)	646( 3)	804( 2)
			158( 15)		1019( 4)
4128	85	71.90 310.80	1019( 3)	460( 4)	847( 5)
			158( 6)		890( 4)
4129	15	71.90 311.20	460( 6)	1148( 18)	
4130	66	71.90 311.60	158( 6)	646( 1)	1234( 17)
			847( 20)	201( 1)	1148( 3)
4131	51	71.90 312.00	259( 10)	890( 4)	1191( 1)
4132	170	71.90 312.40	158( 18)	646( 2)	1234( 2)
			546( 9)	259( 2)	445( 20)
			1234( 4)	646( 10)	790( 17)
4133	177	71.90 312.80	158( 9)	201( 19)	488( 7)
			546( 17)	689( 18)	890( 17)
4134	120	71.90 313.20	201( 18)	244( 2)	445( 20)
			1019( 1)	244( 21)	1019( 16)
4135	136	71.90 313.60	201( 21)	244( 21)	689( 19)
			790( 2)	445( 21)	790( 21)
4136	140	71.90 314.00	201( 21)	833( 2)	689( 11)
			632( 15)	287( 6)	546( 9)
4137	146	71.90 314.40	201( 4)	833( 21)	488( 18)
			790( 2)	287( 21)	445( 16)
4138	134	71.90 314.80	244( 21)	833( 21)	488( 21)
			833( 21)	488( 21)	632( 21)
4139	150	71.90 315.20	244( 21)	287( 21)	775( 16)
			775( 21)	488( 20)	790( 10)
4140	182	71.90 315.60	187( 7)	574( 5)	775( 19)
			632( 20)	632( 21)	632( 21)
4141	168	71.90 316.00	187( 21)	876( 18)	675( 2)
			833( 21)	287( 21)	675( 21)
4142	169	71.90 316.40	187( 21)	431( 21)	775( 21)
			833( 21)	431( 21)	775( 21)
4143	167	71.90 316.80	187( 21)	431( 21)	632( 22)
			675( 21)	431( 21)	474( 4)
4144	182	71.90 317.20	187( 21)	775( 21)	833( 7)
			675( 21)	287( 7)	617( 19)
4145	164	71.90 317.60	187( 21)	775( 14)	474( 19)
			718( 21)	431( 21)	675( 21)

Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)			
4146	155	71.90 318.00	187( 21) 718( 21) 876( 14)	230( 21) 876( 14)	431( 21)	474( 21)
4147	135	71.90 318.40	187( 21) 675( 9)	230( 21) 718( 21)	431( 16)	474( 21)
4148	136	71.90 318.80	172( 20) 718( 21)	187( 6) 761( 11)	230( 21)	474( 21)
4149	144	71.90 319.20	172( 21) 761( 21)	230( 21)	474( 21)	517( 21)
4150	146	71.90 319.60	172( 21) 718( 21)	230( 21)	474( 21)	517( 21)
4151	130	71.90 320.00	172( 21) 718( 7)	230( 19)	459( 17)	474( 9)
4152	105	71.90 320.40	172( 21) 718( 21)	459( 21) 517( 21)	517( 21)	560( 21)
4153	113	71.90 320.79	172( 21) 718( 21)	459( 21) 517( 21)	517( 21)	560( 21)
4154	120	71.90 321.19	172( 21) 761( 21)	459( 21) 804( 8)	502( 4)	517( 21)
4155	124	71.90 321.59	172( 13) 603( 19)	258( 16) 761( 19)	459( 21)	502( 17)
4156	77	71.90 321.99	258( 21) 718( 21)	459( 21) 517( 21)	502( 3)	560( 15)
4157	85	71.90 322.39	258( 21) 718( 21)	459( 21) 517( 21)	502( 3)	560( 15)
4158	78	71.90 322.79	258( 21) 718( 21)	459( 21) 517( 21)	502( 3)	560( 15)
4159	84	71.90 323.19	258( 21) 718( 21)	459( 21) 517( 21)	502( 3)	560( 15)
4160	103	71.90 323.59	158( 3) 258( 21)	258( 21) 588( 3)	603( 21)	646( 21)
4161	105	71.90 323.99	158( 2) 258( 21)	258( 21) 588( 3)	603( 21)	646( 21)
4162	130	71.90 324.39	158( 2) 258( 21)	258( 21) 588( 3)	603( 21)	646( 21)
4163	122	71.90 324.79	158( 3) 258( 21)	258( 21) 588( 3)	603( 21)	646( 21)
4164	72	71.90 325.19	201( 17) 445( 12)	445( 12)	646( 21)	689( 1)
4165	52	71.90 325.59	158( 6) 488( 6)	588( 15) 588( 21)	646( 5)	689( 1)
4166	38	71.90 325.99	244( 1) 1019( 5)	445( 1) 689( 13)	689( 11)	890( 17)
4167	47	71.90 326.39	1019( 5) 689( 13)	689( 13)	588( 13)	890( 10)
4168	26	71.90 326.79	689( 13)	689( 13)	689( 13)	890( 10)
4169	15	71.90 327.19	201( 1) 186( 3)	445( 1) 244( 2)	689( 13)	890( 10)
4170	16	71.90 327.59	186( 3) 430( 7)	244( 2)	287( 9)	875( 2)
4171	7	71.90 327.99	430( 7) 430( 4)	631( 1)		
4172	5	71.90 328.39	430( 4) 186( 2)			
4173	2	71.90 328.79	186( 2) 430( 3)			
4175	21	71.90 329.59	430( 3) 430( 5)			
4176	6	71.90 329.99	430( 5) 473( 7)			
4177	4	71.90 330.39	473( 7) 717( 1)			
4178	7	71.90 330.79	717( 1) 473( 1)			
4179	1	71.90 331.19	473( 1) 172( 3)			
4180	1	71.90 331.59	172( 3) 559( 5)			
4181	11	71.90 331.99	559( 5) 272( 12)			
4182	6	71.90 332.39	272( 12) 803( 10)			
4183	26	71.90 332.79	803( 10) 645( 3)			
4184	10	71.90 333.19	645( 3) 1378( 2)			
4186	4	71.90 333.59	1378( 2) 304.80			
4188	3	71.90 334.79	304.80			
4212	2	72.00 304.40				
4213	7	72.00 304.80				

Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)									
4214	2	72.00 305.20	1220( 1)	1435( 1)								
4215	24	72.00 305.60	1206( 3)	1220( 2)								
4216	10	72.00 306.00	1206( 9)	1306( 1)	1306( 10)	1392( 5)	1478( 4)					
4217	9	72.00 306.40	1306( 3)	1349( 3)	1392( 3)							
4220	3	72.00 307.60	1435( 3)									
4221	32	72.00 308.00	187( 9)	503( 11)	517( 5)	546( 5)	675( 2)					
4222	34	72.00 308.40	187( 2)	259( 2)	273( 3)	503( 7)	517( 2)	632( 1)				
4223	155	72.00 308.80	1220( 10)	1435( 7)								
			187( 14)	259( 3)	273( 7)	431( 11)	474( 9)	503( 3)				
			517( 7)	632( 12)	675( 11)	718( 9)	761( 11)	790( 11)				
4224	101	72.00 309.20	833( 12)	876( 13)	1306( 14)	1349( 8)						
4225	195	72.00 309.60	187( 7)	259( 4)	273( 7)	431( 19)	632( 2)	675( 20)				
			718( 1)	790( 9)	876( 15)	1306( 1)	1349( 16)	474( 2)				
			187( 18)	230( 14)	259( 5)	273( 9)	431( 21)	790( 8)				
			517( 19)	632( 11)	675( 21)	718( 17)	761( 20)	790( 8)				
4226	139	72.00 310.00	833( 3)	1220( 3)	1392( 3)	1435( 9)	1478( 12)	517( 13)				
			187( 13)	230( 14)	273( 9)	431( 15)	474( 6)	833( 3)				
			632( 12)	675( 14)	718( 10)	761( 13)	790( 2)					
			876( 2)	1220( 8)	1478( 5)							
4227	32	72.00 310.40	273( 6)	474( 6)	546( 13)	560( 2)	790( 5)					
4228	137	72.00 310.80	187( 9)	230( 10)	431( 11)	474( 14)	517( 12)	546( 4)				
			560( 9)	632( 7)	675( 12)	718( 4)	761( 4)	790( 9)				
4229	290	72.00 311.20	804( 7)	833( 5)	876( 7)	1220( 13)						
			187( 21)	230( 19)	273( 6)	431( 17)	474( 18)	517( 21)				
			560( 18)	632( 21)	675( 21)	718( 18)	761( 21)	790( 14)				
4230	160	72.00 311.60	804( 19)	833( 19)	876( 16)	1220( 21)						
			187( 6)	230( 21)	273( 4)	474( 21)	517( 21)	560( 3)				
			603( 3)	632( 4)	675( 1)	718( 21)	761( 21)	790( 11)				
4231	129	72.00 312.00	804( 2)	1220( 21)								
			187( 8)	230( 18)	273( 12)	431( 5)	474( 4)	517( 3)				
			560( 14)	603( 2)	632( 6)	675( 6)	718( 20)	761( 3)				
4232	291	72.00 312.40	804( 5)	833( 5)	876( 1)	876( 6)	1220( 11)					
			187( 21)	230( 15)	273( 20)	431( 21)	474( 14)	517( 6)				
			560( 21)	603( 21)	632( 18)	646( 10)	675( 18)	718( 20)				
4233	343	72.00 312.80	761( 6)	804( 21)	833( 21)	847( 20)	876( 18)					
			158( 10)	187( 21)	230( 21)	273( 18)	431( 21)	474( 21)				
			517( 18)	560( 20)	603( 21)	632( 18)	646( 21)	675( 21)				
			718( 19)	761( 21)	804( 21)	833( 19)	847( 21)	876( 10)				
4234	299	72.00 313.20	890( 1)									
			158( 3)	187( 2)	230( 21)	273( 18)	431( 8)	474( 21)				
			517( 21)	560( 21)	603( 18)	632( 21)	646( 21)	675( 21)				
4235	300	72.00 313.60	718( 20)	761( 19)	804( 21)	833( 20)	847( 21)	890( 2)				
			158( 2)	187( 8)	230( 21)	273( 21)	431( 2)	474( 21)				
			517( 20)	560( 21)	603( 19)	632( 21)	646( 20)	675( 18)				
			718( 19)	761( 20)	804( 17)	833( 19)	847( 20)	876( 1)				
4236	384	72.00 314.00	890( 8)	1019( 2)								
			158( 19)	187( 21)	230( 21)	273( 21)	431( 19)	445( 5)				
			474( 20)	517( 21)	560( 19)	603( 21)	632( 6)	646( 19)				
			675( 18)	689( 9)	718( 21)	761( 21)	804( 21)	847( 19)				
			876( 21)	890( 21)	1019( 21)							





Table 6. Seasat Greenland Geographical Data Base (Cont.)

BIN NUMBER	NUMBER PTS	LAT-LONG SW CORNER	REV (NUMBER PTS)				
4289	1	72.00 335.19	473( 1)				
4290	25	72.00 335.59	186( 1)				
			1434( 1)				
4291	12	72.00 335.99	186( 4)	272( 2)	430( 1)	473( 5)	1391( 5)
				1477( 6)	631( 2)	1391( 3)	1305( 4)
				272( 2)			1477( 1)

Table 7. Seasat Geo-referenced Data Base Header Description

FILE 1: GEO-REFERENCED DATA BASE HEADER RECORD  
 Record Format: One logical record corresponds to one physical record  
 Blocksize: 480 Bytes

<u>Bytes</u>	<u>FORTTRAN Variable Type</u>	<u>Description</u>
1-4	I*4	Number of latitude rows in the data base (56)
5-8	I*4	Northwestern-most latitude of data base in degrees North ( $\times 10^5$ ) (7210000)
9-12	I*4	Northwestern-most longitude of data base in degrees East ( $\times 10^5$ ) (30000000)
13-16	I*4	Southeastern-most latitude of data base in degrees North ( $\times 10^5$ ) (5990000)
17-20	I*4	Southeastern-most longitude of data base in degrees East ( $\times 10^5$ ) (34000000)
21-244	I*4	Width of each latitude row in degrees ( $\times 10^5$ ), starting with the southernmost row. This is dimensioned by the number of latitude rows in the data base.
245-468	I*4	The number of longitude divisions in each latitude row, starting with the southernmost row. This is dimensioned by the number of latitude rows in the data base.
469-472	I*4	Logical record in data base at which directory starts.
473-476	I*4	Size of the data base, including the directory, in blocks.
477-480	I*4	Status word for altimetry data.

0 ————— 31

<u>Bits</u>	<u>value</u>	<u>Description</u>
0-23	0	Unused
24	1	Slope correction applied
	0	Slope correction not applied
25	1	Orbit adjustment applied
	0	Orbit adjustment not applied
26	1	Solid tides removed
	0	Solid tides not removed



Table 7. Seasat Geo-referenced Data Base Header Description (Cont.)

(477-480 Cont.)	<u>Bits</u>	<u>Value</u>	<u>Description</u>
	27	1	Retracking correction applied
		0	Retracking correction not applied
	28	1	Center of gravity bias applied
		0	Center of gravity bias not applied
	29	1	Tropospheric correction applied
		0	Tropospheric correction not applied
	30	1	Ionospheric correction applied
		0	Ionospheric correction not applied
	31	1	Time bias applied
		0	Time bias not applied

Table 8. Seasat Geo-referenced Data Base Description

FILE 2: GEO-REFERENCED DATA BASE  
 Record Format: 595 logical records correspond to one physical record  
 Blocksize: 19040 Bytes

Subgroup 1: One logical record for each bin containing data

<u>Bytes</u>	<u>FORTTRAN Variable Type</u>	<u>Description</u>
1-4	I*4	Indicates the number of logical records which follow which are located in the bin
5-32		Unused

Subgroup 2: One logical record for each data point in the bin

<u>Bytes</u>	<u>FORTTRAN Variable Type</u>	<u>Description</u>
1-4	I*4	North latitude of datum point in degrees ( $\times 10^6$ )
5-8	I*4	East longitude of datum point in degrees ( $\times 10^6$ )
9-12	I*4	Surface height relative to the ellipsoid in cm.
13-16	I*4	Height sigma, arbitrary value of 1.0 m used ( $\times 10^5$ )
17-18	I*2	Rev number
19-20	I*2	Used for temporary flags when gridding the data
21-24	I*4	Orbit adjustment in meters ( $\times 10^5$ ) (-999999999 if unavailable)
25-28	I*4	RMS of orbit adjustment in meters ( $\times 10^5$ ) (-999999999 if unavailable)
29-32	I*4	Slope correction in meters ( $\times 10^5$ ) (-999999999 if unavailable)

NOTE: Subgroups 1 and 2 are repeated for as many bins with data.

Table 8. Seasat Geo-referenced Data Base Description (Cont.)

Subgroup 3: Directory

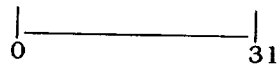
<u>Bytes</u>	<u>FORTTRAN Variable Type</u>	<u>Description</u>
1-4	I*4	Record number at which data for bin 1 starts
5-8	I*4	Record number at which data for bin 2 starts
9-12	I*4	Record number at which data for bin 3 starts
13-16	I*4	Record number at which data for bin 4 starts
17-20	I*4	Record number at which data for bin 5 starts
21-24	I*4	Record number at which data for bin 6 starts
25-28	I*4	Record number at which data for bin 7 starts
29-32	I*4	Record number at which data for bin 8 starts

NOTE: The directory contains as many 32-byte logical records as necessary to designate the record locations of all bins.

Table 9. Elevation Grid Header Description

FILE 4: ELEVATION GRID HEADER RECORD  
 Record Format: One logical record corresponds to one physical record  
 Blocksize: 80 Bytes

<u>Bytes</u>	<u>FORTTRAN Variable Type</u>	<u>Description</u>
1-4	I*4	Number of latitude increments in the grid for a non-polar stereographic grid (140)
5-8	I*4	Number of longitude increments in the grid for a non-polar stereographic grid (152)
9-12	I*4	Starting north latitude of grid in degrees North ( $\times 10^6$ ) (this will be approximate for a polar stereographic grid) (50000000)
13-16	I*4	Starting east longitude of grid in degrees East ( $\times 10^6$ ) (this will be approximate for a polar stereographic grid) (300000000)
17-20	I*4	Ending north latitude of grid in degrees North ( $\times 10^6$ ) (this will be approximate for a polar stereographic grid) (73000000)
21-24	I*4	Ending east longitude of grid in degrees East ( $\times 10^6$ ) (this will be approximate for a polar stereographic grid) (340000000)
25-28	I*4	Status word for data used to generate grid. A zero in any bit position indicates that the correction is not applied.



<u>Bits</u>	<u>Value</u>	<u>Description</u>
0-23		Unused
24	1	Slope correction applied
	0	Slope correction not applied
25	1	Orbit adjustment applied
	0	Orbit adjustment not applied
26	1	Solid tides removed
	0	Solid tides not removed
27	1	Retracking correction applied
	0	Retracking correction not applied
28	1	Center of gravity bias applied
	0	Center of gravity bias not applied
29	1	Tropospheric correction applied
	0	Tropospheric correction not applied
30	1	Ionospheric correction applied
	0	Ionospheric correction not applied
31	1	Time bias applied
	0	Time bias not applied

Table 9. Elevation Grid Header Description (Cont.)

<u>Bytes</u>	<u>FORTTRAN Variable Type</u>	<u>Description</u>
29-32	I*4	Polar stereographic grid size conversion and scaling factor from half-inch grids on projection plane to the desired grid size ( $\times 10^6$ ) (1650000)
33-36	I*4	The number of grids of desired size from the pole to the equator based on the grid size conversion and scaling factor ( $\times 10^6$ ) (608754894)
37-40	I*4	Latitude of the map perimeter in degrees North ( $\times 10^6$ ) (500000000)
41-44	I*4	Greenwich orientation in degrees ( $\times 10^6$ ) (450000000)
45-48	I*4	Polar stereographic switch (1) =0, grid has constant increment in latitude and longitude =1, grid is in polar stereographic projection
49-52	I*4	Number of I-axis divisions to the extent of the map perimeter (445)
53-56	I*4	Number of J-axis divisions to the extent of the map perimeter (445)
57-60	I*4	J coordinate of the projected pole (223)
61-64	I*4	I coordinate of the projected pole (223)
65-68	I*4	Minimum J index of the grid (166)
69-72	I*4	Maximum J index of the grid (317)
73-76	I*4	Minimum I index of the grid (305)
77-80	I*4	Maximum I index of the grid (444)

Table 10. Elevation Grid Description

FILE 5: ELEVATION GRID DATA RECORD		
Record Format: 10 logical records correspond to one physical record		
Blocksize: 1800 Bytes		
	FORTRAN	
	Variable	
<u>Bytes</u>	<u>Type</u>	<u>Description</u>
1-4	I*4	Condition number of the matrix used in the least-squares solution to the function ( $\times 10^6$ )
5-8	I*4	Capsize in degrees latitude - radius from grid location defining area from which data was used to define grid ( $\times 10^6$ )
9-12	I*4	North latitude of grid point in degrees ( $\times 10^6$ )
13-16	I*4	East longitude of grid point in degrees ( $\times 10^6$ )
17-20	I*4	Height values of the grid at location relative to sea level in meters ( $\times 10^5$ )
21-24	I*4	Number of data values that were used to calculate grid value
25-28	I*4	Number of parameters used to define function, NPT, (equals 0, 3, or 6)
29-52	I*4	Six gridding function coefficients. If NPT is $< 6$ then the rest of the coefficients are initialized to zero. ( $\times 10^5$ )
53-76	I*4	Set of null coefficients associated with any negligible singular values (see SVD reference). If NPT is $< 6$ then rest of coefficients are initialized to zero ( $\times 10^6$ )
77-80	I*4	Distance in km from grid locations to closest data point ( $\times 10^6$ )
81-84	I*4	North latitude of closest data point to grid location in degrees ( $\times 10^6$ )
85-88	I*4	East longitude of closest data point to grid location in degrees ( $\times 10^6$ )
89-92	I*4	Height associated with closest data point to grid location in meters ( $\times 10^5$ )
93-96	I*4	Standard deviation of the data with respect to the gridding function in meters ( $\times 10^6$ )
97-180	I*4	Correlation matrix from solution. This is a symmetrical 6 X 6 matrix so only the upper triangular portion is stored. The order of storage is elements 1-6 are the first row elements, 7-11 columns 2-6 of second row etc. ( $\times 10^5$ )

NOTE: Ten of the above-mentioned 180-byte logical records make up one block of data.

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16. Abstract The data processing methods and ice data products derived from Seasat radar altimeter measurements over the Greenland ice sheet and surrounding sea ice are documented in this first volume of a series. The corrections derived and applied to the Seasat radar altimeter data over ice are described in detail, including the editing and retracking algorithm to correct for height errors caused by lags in the automatic range tracking circuit. The methods for radial adjustment of the orbits and estimation of the slope-induced errors are given. The various levels of ice data sets are described in this report, but the user is referred to Volumes 2 (Greenland) and 4 (Antarctica) for more detailed descriptions of the gridded elevation data sets and the geo-referenced data bases.					
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